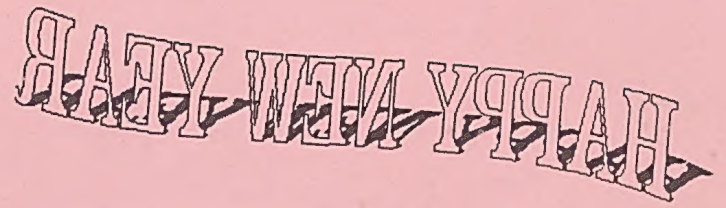
AUSTRALIAN SOCIETY FOR LIMNOLOGY INC

NEWSLETTER



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MEMBERSHIP DETAILS

The Australian Society for Limnology Inc. (ASL) is an association of over 400 people with professional or amateur interests related to Australian inland waters. Since its inception in 1961, the society has played an important role in fostering limnology in this country. The ASL promotes liaison between limnologists in academic, government and private institutions and has a vested interest in the conservation of aquatic and related resources. Annual conferences are held near centres of limnological interest, and the programme includes scientific sessions, field excursions and social activities.

The ASL regularly produces a newsletter with notes on limnological activities, articles of general interest, book reviews and announcements of upcoming events likely to be of interest to members. Occasionally, it produces a Special Publication series and a Directory of Members.

Membership applications are welcome from any person with an interest in limnology. Five classes of subscribing membership are available:

Ordinary members	$ 20.00
Student members	$ 10.00
Life members	$200.00
Institutional members	Fees on application
Sustaining members	Fees on application

Membership covers the period from 1 July to 30 June and all members receive the regular and occasional publications produced by the society. Members may also choose to receive the Australian Journal of Marine and Freshwater Science, the Australian Journal of Zoology and/or the Australian Journal of Botany at special reduced rates. The subscription for each journal is based on the calendar year in which the subscription is paid.

Enquiries relating to membership should be directed to the Membership Officer:

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Material for publication in the March 1991 issue of the newsletter should be sent to the editors before Friday 22nd February 1991.

Please forward long articles as unformatted text on discs, or as formatted text in any commonly used word processing package (e.g. WordPerfect, Microsoft Word, Wordstar). All those with Macs, send your hard copy in crayon (I bet you drive Russian cars too). Camera ready copy can also be sent (A5 sheets, 2 cm margins). Those of you with BBC discs ... well ... um ... er ...we hope you like them.

Cover: The cover shows a seasonal greeting in a nice type-face, an interesting font and a rather becoming graphical style.

Editorial

TOO MUCH! TOO MUCH! WE WERE ONLY KIDDING!

Murphle! Grumphle! Phlaberrt! That's the sound of the editors trying to communicate while buried under an increasing mound of submissions for this edition of the newsletter. The request for copy, cunningly disguised, we feel, as a sarcastic complaint, in the last issue was greeted with enthusiasm. The postie at ARI is now on Work-Care after having to lug all the stuff around. The editors' offices are threatening to explode if one more little after-dinner-mint-of-a-submission arrives. But thank you all for heeding the call. One enthusiastic reader, scared we may not have enough for this issue, even sent the same copy twice! (We made the tough editorial decision to only print it once).

But don't just sit there and pat yourselves on the back. There's another issue due in only three months - just enough time to write that book review, request for information, special article on your research project or even just collect together a joke or two. Keep those cards and letters coming. We'd hate to have to get sarcastic again in the next issue.

So, consequently, this is a chock-a-block issue filled with happy reading for the happy holiday break. All the usual features are there, Prattlerumourbutt from here and there, On the Secretary's Desk with more news on FASTS, a plethora of Announcements, advanced technology meeting skills and techniques in 60 Minutes and all the usual stuff. There is a Soap-Box Corner with a whining letter from a disgruntled member, and some info on a lost limno. Of importance is an analysis of potential research priorities for the new LWRRDC (an invitation to have your say). A few special features have come in, including various conference reports from overseas junkets, an article on the hydraulic basis for snag management, and some news about various research stations throughout the world. And finally, given the imminent arrival of the festive holiday season, Children's Corner, with a few things we have seen, received or made up purely for your entertainment (don't complain about the jokes - we don't get paid for this). With all this, we won't hold you up with a long editorial. You've got a lot of reading to do!

Spot The Deliberate Mistake Competition: Well, no-one spotted the deliberate mistake in the September issue. Yes, the French quote on page 35 should have, in fact, read "Plus ca change, plus c'est la meme chose." As no-one wrote in with the correct answer, the black 1990 convertible BMW offered as a prize must now go back to the dealer. Bad luck! Better luck spotting the deliberate mistake in this issue. A new prize is on offer - an authentic pre-loved (i.e. used) ASL Albury Conference Mug!

THIS IS THE ASL, THAT'S LIFE

Well! I just can't believe you went and paid $5,000 for a toaster that's not worth 20 bucks! That guy must still be laughing!
Oh, yeah? How about yesterday when that fellow sold you that "magic" pen and pencil set for $10,000!

Sucker fish at home

PRATTLE, SCUTTLEBUTT AND RUMOUR

VICTORIA

Correspondent: Leon Barmuta, DEEB, Monash University, Clayton 3168

From the Rural Water Commission, Gary Bennison reports that his minions are busy enough to keep him very busy. The State Water Laboratory now has a new manager: Ken Fung from the State Chemistry Labs; welcome Ken. Vince Pettigrove will extend his Yarra studies to form an M.Sc. thesis at Melbourne University. Kumar Eliezer is surveying Lake Lascelles to determine the impact of the herbicide Sonar (based on Fluridone) under the collaborative eye of Kath Bowmer from CSIRO Griffith. Harry Clark has handed in a first draft of a study on the impact of three fish farms on the lower Goulburn to the EPA; it will eventually be published in the Authority's scientific studies series. And the other LimnoLeon (of the Metzeling variety ... you know ... the other Leon's brother) from the EPA is in the midst of dosing a few bugs with salt in the artificial stream facility.

At CEAH at Melbourne University, Bill Young has coaxed the laser doppler annenometer into life and is being perplexed by the sudden appearance of 3 metres of lego baseboard in his test flume. As a diversion he and Chris Gippel are wrapping up Chris's study on the hydrodynamic effects of snags on channels, while Nancy Gordon is running her Mac hot churning out nearly final versions of the Great Book On Flow For Biologists. Brian Finlayson was last spotted somewhere near Oxford visiting Jocelyn Hughes before heading south to Italy.

The MegaMonashMerger continues to confuse the inmates, but several of them are sporting grins over recent successes in the ARC bloodbath. Barbara Downes, Sabine Schreiber, Sam Lake and Gerry Quinn from the Clayton campus will be examining patch dynamics and disturbances in freshwater systems (not just the Acheron either!!). Gerry, a fugitive limpet man, seems to have seen the light and headed limnological, although he still persists in looking at gastropods. Ian Campbell will be looking at bugs near Lake Tali Karng, and he and Rick Edwards have funding to look at benthic primary production in a river (...guess where). Rick and Ron Beckett also have support to pursue the use of FFF for bacteria. Finally, the Centre for Stream Ecology has another year's worth of funding, occasioning several sighs of relief. Congratulations to all on their successes in levering money from the administrators of the Clever Country.

The new aquatic ecology lab at Clayton buzzes with a stream (pun intended) of students. Julie Smith has just completed a very interesting honours project and found that hyporheic

detritus was consumed faster than that on the surface. Jacqui Jordan is well into watching grazers forage on bricks in the Acheron, and Shane Brooks seems to be doing some sort of unofficial technical diploma in the workshop. He tells us he's working on disturbance in the Lerdy. Leon Barmuta pays occasional visits and sits quietly in dark corners playing with lego, near-bed flow environments and typing endless contributions for the Newsletter from the luddites who only use Macs.

Other news from the Caulfield campus: Barry Hart has just returned from OS, but the doppler effect rendered his verbal communications inaudible as he shot out of his office for some meeting or other. Meanwhile, Kim James has successfully got her pilot saline wetland experiment off the ground (or into the mud, I guess), and reports that her enclosures, salt and tiger snakes are doing very well. Danny Vertessy and Paul Bailey have also been tossing some salt into a field experiment - this time an outdoor artificial stream nowhere close to the Acheron River.

At the Museum of Victoria, Richard Marchant reports there are a lot of numbers of bugs in sites on rivers from around Victoria which he and Jane Doolan from OWR have raised money to analyse. They are now looking for appropriately qualified computer-invertebrate whizzes, but first have to demonstrate to the Public Service that unemployed tram conductors would be unsuitable for the job.

Conservation and Environment remains an large black box containing many frustrated scientists. Sources who prefer anonymity are in there fighting to prevent the savage funding cuts being proposed in the aftermath of the Tricon-Pyramid debacle; as ever research is the first to face the razor. Through it all some remain relatively sane. Sandy Morrison and John Anderson from Kaiela (Shepparton) are among them and told the recent Fish Biol conference about the discovery of *Galaxias brevipennis* in Koetong Creek. Together with Lachlan McKinnon they have been looking at the responses of fish to trial flooding of the Barmah Forest. Apart from having a few problems with some unplanned floods inflicted by Mother Nature, they have found deoxygenation to be widespread in flood waters, confirming in part some of Peter Gherke's suspicions about the favorability of flood waters for little fishies. John and John McGuchkin attended a recent conference on salinity at Mildura and told of their findings on the effects of saline groundwater on habitat values in the Campaspe, Goulburn, Avoca and Glenelg Rivers. John Koehn and Tim Doeg are continuing with their forestry project on the effects on stream fauna, albeit at a much reduced scale due to the abovementioned razor reasons.

TASMANIA

Correspondent: Dr. Pierre Horwitz, Dept. Geography and Environmental Science, University of Tasmania (who, by self-admission is "... an Apple Macintosh nerd ...")

The Department of Environment and Planning have just released their annual report for 1988-1989 and apart from the obvious smart alec reports about it being 14 months overdue, it contained a very frank discussion of the state of Tasmanian rivers, claiming for instance that the Queen and King rivers were "dead" and that the Tamar had rather a lot of faecal bacteria (basically - some very entertaining reading). Copies are rare and rumours are rife that the author of the document is currently looking for new work in a new state with new friends.

Limnologists, aquatic biologists and amateur naturalists are currently queuing for the latest release in the *Fauna of Tasmania* series - Wayne Fulton's work on Tasmanian Freshwater Fishes. This authoritative text is a well worthwhile inclusion for personal libraries and is available from good bookshops or by writing to the Fauna of Tasmania Office, Department of Zoology, University of Tasmania ($9.50 plus $1.00 postage). The publication of the book is one of several highlights during Wayne's honeymoon period as the new Commissioner of the Inland Fisheries Commission (IFC). Despite this, not all is well with the IFC, even though they continue to do excellent research on freshwater matters in Tasmania. A discussion paper for an new Fisheries Act, has been circulated and in it are veiled indications that the role of the Commission in the management of freshwaters, will be eroded. It is quite possible that the Commission will be subsumed within a Department of Primary Industry, and it must be said that such a department might well take a lower profile in the conservation of flora and fauna of inland waters. Requests for copies of the discussion paper, and submissions in response to it, should be sent to the Director of Sea Fisheries, Box 619F, GPO Hobart 7001.

Research at the IFC is burgeoning again. Peter Davies has run out of fingers and pies, and will soon commence the second phase of the logging/forestry project near Mt Barrow in the north east, a joint IFC/CSIRO project examining trout, stream invertebrates and sediment. Meanwhile, with Jan Barton, they continue to detect pesticide, herbicide and fungicide residues in NW, NE and SE streams, which is quite a worry really, and John Diggle continues with the brown trout and habitat study in the St Patricks system in the northeast. Stuart Chilcott is emerging from mayflies and continuing with his life history studies in the Macquarie system. Premek Hamr has a breeding trial for *Galaxias pedderensis* at Salmon Ponds, and is looking for larvae, eggs and a translocation site in the World Heritage Area.

Speaking of the World Heritage, another major development recently was a symposium on World Heritage values in the Tasmanian Wilderness. The two-day exercise bombarded the audience with a plethora of facts in a largely uncritical appraisal of science in the World Heritage Area. To me the highlight of the two days was a rivetting 40 minute presentation of four or five thousand slides on lakes by Peter Tyler, who was the only speaker to blend science with wilderness values and incorporate unadulterated emotions, to convince the audience of the value (to everyone) of the area. Well worth crossing the continent for. Peter himself crossed the globe recently, returning from trains in Europe. An envelope with the following information appeared in mysterious circumstances: "Peter Tyler spent much of the European summer with colleagues in the Institute of Aquatic Ecology in Girona, working on meromictic Estany de Banyoles. Current work includes processing data from a joint project with CSIRO on remote sensing of limnological properties of Tasmanian lakes. CSIRO operated a Fokker Friendship equipped with side-looking radar, video camera and 8-channel ocean colour scanner, criss-crossing the lake district at 10,000 ft while below Peter and Grace Tyler, and students Robert Walsh, Alison Turnbull and Helen Tyler used a float plane to sample any lake offering a reasonable chance of a subsequent take-off. Over two days with the Fokker overhead 55 lakes on the Central Plateau and in the south west mountains as well as World Heritage Area coastal lagoons, were "ground truthed" (ABC speak) for a number of parameters, including chlorophyll and copepod fifth legs. David Thomas and Andrew Davidson worked through the nights to fix and prepare the day's load of samples." The train in Spain is sampled mainly from the plane.

As if by magic, and sporting graze marks from Western Australian granite, Ian Bayly flew in to catch the tail end of the start of these projects, take a careful look at a beach, talk about Lake Eyre and impart a calming influence on Honours students who are currently (November) swarming around word processing facilities and fast food outlets.

Not far away, in Zoology, Stefan Eberhard, with Alistair Richardson and Roy Swain, writes up his cave fauna survey (National Estate Project). A new project has started for them on cave (aquatic) amphipods (with the Forestry Commission) in the Mole Creek area. Protodoctor Jean Jackson has been heard muttering unmistakably cladistic phraseology whilst applying pen to thesis. In Environmental Studies, Greg Blake has just commenced a project on zooplankton communities in farm dams, and Juliet Chapman works on the fine line separating politics, limnology and toxicology (as it applies to the Derwent).

Finally, Peter Davies and Pierre Horwitz, still smarting from the embarrassment of being ruthlessly tricked into each sending a correspondent's report, and then being made fun of, have vowed to seek retribution and subliminal sabotage has not been ruled out at this early stage. (Sorry Guys! Holy Cream Puff, are we scared! - *Eds*)

SOUTH AUSTRALIA

Correspondent: Fran Sheldon, River Murray Lab, Dept of Zoology, University of Adelaide, GPO Box 498, Adelaide 5001

Peace and relative sanity prevail since Andrew Boulton went to cause havoc in Arizona; Lance Lloyd migrated upstream to manipulate floods in Barmah forest and Shane Brooks was exported to Monash. Dr Alice Wells has joined the exodus leaving the cold, rain and oranges of S.A. for the heat, rain and tropical fruits of Darwin to become Curator or Insects at the Northern Territory Museum (Congratulations Alice! - *Eds*).

Of those who remain, Jim Puckridge (Ph.D) is seen only between his frequent field trips to Coongie Lakes. He is thankful for the record floods over the past two years - thankful that he didn't choose to work on drought effects!! He is working tirelessly with the Conservation Council of S.A. for World Heritage listing of the Lake Eyre Basin. On the topic of floods, Ross Corkrey (Ph.D.) temporarily lost sight of the mites residing in his freshwater mussels as a flow of 120,000 Ml/day poured down the Murray. These same floods added an interesting dimension to my work on littoral zones.

Now for the "Globe Trotters": Prof. Williams spent 6 weeks in Hong Kong early 1990 writing a paper on the "Limnology of Australian and Mongolian Salt Lakes". He visited Prof. Stuart Fisher in Arizona in April and in keeping with better relations between East and West moved onto the USSR (Leningrad and Moscow) where he visited the Aral Sea (hmm...must've moved since our atlas was published - *Eds*). In September, Martin C. Thoms attended a conference on Arid Zone Limnology in Saskatoon, Canada. Also in September MCT and Keith Walker attended 3 conferences in the U.K.: the workshop on Semi Arid Rivers, York; Management and Conservation of Rivers, York; Fluvial Dynamics of Lowland Rivers, Loughborough. Earlier in the year MCT visited K. Rogers, J. O'Keffe and B. Davies in South Africa. Mike Geddes and Martin Smallridge attended the International Association of Astacology conference at Louisiana State University in April; they also held three open day sessions on yabbie aquaculture in conjunction with the S.A. Fisheries Department in March.

Visitors to the Department included Prof. Stuart Fisher (Arizona), Dr Paul Boon (MDFRC) and Nick O'Connor (Monash).

Honours students Terry Bertozzi (taxonomy of Western Carp Gudgeons), Catherine Watt (turbidity vs predation by *Gambusia*), Janine Lloyd (taxonomy and ecology of *Oecetis*), and Peter Hudson (acidic salt lakes) are relaxing after handing in theses. Mid-year intakes Robyn Molsher (salinity tolerance of hardyheads) and David Slaney (experimental manipulations of salt lake microcosms) are currently juggling field work with essays.

From the Botany Department, Marcus Brownlow continues to do botanical things at Bool Lagoon, Naomi Rea is writing frantically and Chester Merrick is now officially Dr Merrick and has been assisting with the 3rd year Freshwater Ecology Class in Zoology.

Phil Suter, Peter Goonan and Jenny Beer at the State Water Labs have had to search for their wetlands under about three metres of water for the past few months. They have bogged a few vehicles, but have been assured that the wetlands should reappear soon.

Back to the animals, reliable rumour has it that Andrew Boulton is to return to the Zoo Dept in Feb 1991 to investigate some of the arid streams in the Flinders Ranges. The final quote comes from Prof. Williams, who relieve Mike Geddes as Departmental Head in January; he says that he has "decided to eschew Faustian bargains with governments".

WESTERN AUSTRALIA

Correspondent: Adrian Pinder, BES, Murdoch University, Murdoch 6150

Very little appears to be happening in WA if the response to my request for information is any indicator. Consequently most of the news is Murdoch-based.

Belinda Robson has joined the wetlands classification project, helping Faye Cheal while Jane Growns is taking a few months hard-eared break after she and Ivor produced a baby girl (Beth). Also Jack Mercer and John Arena have commenced work with the chironomid research group for the summer months. Shirley Balla has finished lab work for her Ph.D. and is now concentrating on data analysis, and Mark Lund is planning the final field experiments in his quest for a Ph.D. on biologically mediated wetland restoration.

Jane Latchford has started a project on "The environmental effects of the physical modification of salt marshes for mosquito control", funded by the Health Department of W.A. Previously Jane had spent 18 months working with the Arbovirus Ecology Group at the University of W.A.

A few members of the Wetland and Centre for Water Research Groups headed down to sunny Busselton for a one day conference on "Wetlands of the South West (the role of local government and landowners in the management of wetlands in the south west of Western Australia)", on 24th November. Jenny Davis (Murdoch) and Stuart Halse (CALM) were among the invited speakers.

In the Fish Group at Murdoch, Prof. Ian Potter has just returned from Europe where he pursued his research on lampreys. The Ph.D. studies of several candidates (Tom Rose, Laurie Laurenson, Paul Humphries and Luke Pen) are nearing completion, while Pia Geisjel has deferred her studies to allow her to spend time gaining some experience with the Antarctic Division.

Studies of the fish fauna of the Wilson Inlet in south-western W.A., ongoing since 1987, are drawing to a close. Field work has been completed and the data are now being analysed. Neil Loneragan, a long term expatriate member of the fish group, visited Murdoch on his way from the University of Waterloo (Canada) to CSIRO in Qld, where he will take up a postdoctoral position.

AUSTRALIAN CAPITAL TERRITORY

Correspondent: Dr Jann Williams, Plant and Land Branch, Bureau of Rural Resources, DPIE, GPO Box 858, Canberra, 2601

Bureau of Rural Resources (BRR), Canberra

Richard Tilzey is heavily embroiled in marine fishery ploys, but is finding an odd minute to write-up some of his Eucumbene work, and is often seen to be continuing sampling with a fly rod, muttering imprecations as he thrashes the water to a foam. Richard has also been doing battle on the noxious fish front of late, as he had the good fortune to run over a large European carp in the middle of Kings Avenue Bridge. The somewhat burly lady of mid-European extraction on the other end of the line was definitely not impressed. The first draft of the Native Fish Management Plan compiled by Brian Lawrence of the Murray Darling Basin Commission (MDBC) has just been released, and will hopefully engender some action in this arena. Norm Mackey, that fluffy little pearl of goodness from the same organisation (no comment - *Eds*), has finally finished editing a book entitled "The Murray" which is now in press, and should be out shortly. The book presents an overview of human impact on this river system.

Gina Newton is reputedly hiding out somewhere down south, writing up her Ph.D. thesis on the peculiar habits of zooplankton living in the Hopkins estuary.

Michele Barson and Robyn Johnston are busy writing up their AWRAC/DWR/DCE funded research on the remote sensing of wetlands and their vegetation characteristics. Brian Finlayson and others of the Centre for Environmental Hydrology are looking at flow records from the Goulburn River to try to predict volumes required to fill wetlands on the floodplain.

Jann Williams and Michele are preparing a draft paper on wetland information needs. This work was initiated after the informal wetlands session held at the ASL Jabiru Congress in April. The paper looks at wetland definitions, classifications and a minimum data set for inventory purposes; Ian Musto from NRIC will contribute a chapter on database and Geographic Information System (GIS) formats. The draft paper will be widely circulated for comment before the end of the year.

BRR has also been invited to run a wetlands workshop on behalf of the MDBC, one of a series to be held to establish GIS and database standards for natural resources information in the Basin. The basis for discussion at the workshop will probably be the wetland information needs paper. While the workshop is intended primarily for MDB States, we hope representatives from the other States will be able to attend. It is envisaged that the workshop will be held in Canberra in March 1991.

NEW SOUTH WALES

Correspondent: John Hawking, MDFRC, P.O. Box 913, Albury NSW (Fax: 060-431626)

Sydney Water Board, Stream Studies

The 'Stream Studies' Section has emerged from the recent reorganisation of the Water Board Scientific Services. This section is involved in the monitoring of water quality in the Warrgamba Dam Catchment and Shoalhaven River Basin and will incorporate biological assessment of water quality. Bruce Chessman has made the big swim across the Murray and has taken up his position as Leader of Stream Studies. Confidentially he believes West Ryde to be an area of outstanding beauty and a lovely environment in which to work. Colin Heath has left Scientific Services but is still with the Water Board. We think 'the Beard' may be a Principal Environmental Scientist in Head Office. Ruth O'Connor and Ian Wright are still involved in water quality and macro-invertebrate studies in the Blue Mountains. Bruce wants them to become more familiar with chironomids so you might not hear from them for a long time.

Inland Fisheries Research Institute, Narrandera

The fish breeding season is now in full swing at the Inland Fisheries research Station, Narrandera, and results to date are extremely promising. This is the first year that we have attempted to breed trout cod as part of the routine breeding activities (previous trout cod breeding was part of and endangered species research program), and so far this year we are on target to exceed the total number of trout cod produced in all previous years.

A well-deserved pat on the back to Stephen Thurstan. Murray cod and silver perch production are going well and golden perch breeding should commence shortly.

New staff abound at IFRS: Advisory Officer, Ron Billyard, joined us from the Northern Territory early in November, and is actively compiling information on fisheries and environmental issues in the Murray-Darling basin. Ron is an ASL member, and has worked in aquaculture and as a teacher in his past life. Paul Brown joins the research staff early in December to add to our capability in fish ecology. Paul comes from the University of Bangor in North Wales, where he studied osmoregulation and renal function in migrating sea trout. Its good to see physiologists getting involved in freshwater fish in Australia.

Recently, I've been looking at the guts of gourmand gudgeon larvae from billabongs in Millewa Forest. It appears that larvae less than 5mm long feed on rotifers near the water surface during the day, and cease feeding and disperse at night. In contrast, larger larvae feed on cladocerans, copepods and a few rotifers during the day, and converge on the surface waters at night. More results await.

A new pond has been built on an area of natural floodplain for comparative studies with optimal and undesirable habitats for fish larvae. Lucky golden perch larvae look like being the first test pilots.

Murray-Darling Freshwater Research Centre

The Centre's staff have maintained their usual high level of activity and enthusiasm, which can be attributed to the good news on the review, the influx of interesting overseas visitors and the presence of collaborating scientists.

The dreaded "Report of the Review Committee" has been released to the public and laboratory staff. It's comments are extremely favourable and promise a sound future for the Centre and limnological research in the basin. While on achievements, the Director of the Centre has signed a "Memorandum of Agreement" with the Vice Chancellor of Monash University with a view to encouraging and expanding co-operation between the Centre and the appropriate environmental groups at the University. Does this mean that the Acheron River will become part of the Murray-Darling Basin or the basin become part of the Acheron?

Laura Serrano, a PhD student from the Department of Ecology, University of Seville, is currently working at the MDFRC with Paul Boon. The Spanish Government, desperately trying to throw off the shackles of Franco's enlightened social policies, now makes annual awards for post-graduate students to study for up to three months in another country. Laura attended the SIL Congress in Munich, where she was overwhelmed by the

eloquence, power, tact, grace, quality, quantity and modesty of PIB's talk on billabongs. She immediately decided that Oz was the place to be, and billabongs the water body to study. After much shenanigans with Olympic airways (we book you to Sydney, but you land in Melbourne; your luggage goes to Sydney, though), Laura finally made it to the Promised Land. She is here until Christmas, working on the effect of polyphenolic compounds on phosphorus regeneration in billabongs. She also makes a mean paella, and can consume fino sherry like there's no tomorrow. Somehow, she has developed a liking for Chambers' Liqueur Muscat. (Thanks Paul for taking Laura under your wing, because us of lower character and moral fibre couldn't have accomplished the task).

Several visitors are collaborating with Russ (Rotifer) Shiel. Dr Walter Koste, from Quakenbruck, Germany, with his assistant, Christine Leutbecher, commenced a project on the taxonomy and ecology of sessile rotifers associated with billabong *Ricciocarpus* and *Azolla* communities. They will be here from Sept. 10 to Oct. 06 1990. Jordi de Manuel, from the Ecology Dept., University of Barcelona, Spain will be here between Oct. 05 - Nov. 30th to continued with field and laboratory work on this project, working on quantitative samples and adding video and SEM components (boy, a few up-to-date contributions there - *Eds*). The third international collaborator(s) will arrive mid-Dec. (for 6 months): Dr Lilian Matveev, USSR Academy of Science, Moscow, whose specialty is population dynamics of Rotifera, will continue with the *Ricciocarpus* project.

Dr Vladimir Matveev, also from the USSR Academy of Science, Moscow, plans to initiate *in situ* enclosure experiments to quantify predatory interactions between mites, hemipterans and zooplankton, particularly cladocerans, in billabongs. Also planning to work on zooplankton, particularly cladocerans, Prof. Moshe Gophen, Kinneret, Israel, has proposed a sabbatical at MDFRC beginning mid-1991.

University of New England

We are over our ankles and up to our ears in our blooming wetland research projects on the Northern Tablelands. We have also been busy getting the feet of our undergraduate students wet: 200 first years let loose on one wetland is hardly a fair human impact! John Weir from the Department of Ecosystem Management ran his limnology course this semester and Margaret Brock has been teaching Aquatic Ecology so we have quite a few interested students at present. One student, Stuart Blanch has a summer scholarship to work on aquatic plant propagule dispersal with Kath Bowmer at CSIRO in Griffith and another may work with George Ganf's group in Adelaide for the summer.

Water Resources, CSIRO Griffith

Kath Bowmer is still being inundated by consultancies on herbicide impacts and aquatic weed control: Dow Elanco are funding trials on Fluridone (a carotenoid synthesis

inhibitor), and the Du Pont consultancy on Bensulfuron in irrigation canals continues this summer. Kath, together with the two Geoffs (Sainty and McCorkelle), has also developed a method for eradicating terrestrial infestations of alligator weed with metsulfuron for only $150 per ha. Griffith will host a National Workshop (11-12 December) reviewing the use, safety and environmental implications of acrolein use.

Gary Jones is fast becoming the most envied person on site, with two successful grants - an NRMS study on predicting and controlling toxic algal blooms in Hay Weir and Carcoar Dam, and a LWRRDC (wasn't AWRAC a more manageable acronym?) study on factors affecting the toxicity of cyanobacterial blooms.

The Roberts and Roberts team (Jane and Ian) are bogged down at the moment, disentangling Dept Water Resources data on gauge readings for the Murrumbidgee: unexplained 2-3m rises and falls over 24hr (perhaps due to clerical errors confusing readings upstream and downstream of weirs) might explain some of the vagaries in managing the river.

A plethora of visitors will honour the site this summer: Richard Wilkins (from the U.K. - but doesn't he host MTV or something - *Eds*) is coming for two months from Feb to work on using algal toxins as commercial insecticides, while K.P. Sharma (India) and Hans Brix (Denmark) will work with Alan Heritage, Brian Sorrell and Philip Orr on the physiology of wetland plants. There will also be at least five students as well: Stuart Blanch (UNE) will work on the transport of seeds and propagules of aquatic weeds in irrigation supply and drainage (co-supervised by Margaret Brock); Jon Sayers (also UNE) will study open channel hydrology, concentrating on the relationship between biomass and resistance to flow; Mathew Fielden (Macquarie) will work on relationships between iron and *Microcystis* toxin production; Jenny Prior (Melbourne) will work on *Acinetobacter* (phosphorus-scavenging microorganisms); and Eric De Deckere (Holland) will work on suspended solid breakdown in wetlands.

NORTHERN TERRITORY

Correspondent: Bob Pidgeon, Alligator Rivers Region Research Institute, Jabiru, NT 0886

At last ... some RAIN!

The blackened woodlands of Kakadu have suddenly turned GREEN (yes ... it can happen). Alas ... it's time for aestivating lotic limnos to emerge from their air-conditioned tombs and PCs to prepare for another action packed Wet (err ... at least I think that is the reason!).

At the Alligator Rivers Region Research Institute the possibility of a release of waste-water from Ranger Uranium Mine into Magela Creek makes the Wet season a very busy period. The Biological Monitoring section will be operating 4 main projects during the season. Chris Humphrey, Peter Dostine, and Caroline Camilleri will be working on invertebrate communities colonising artificial substrates. This season three creekside labs will be used for rapid detection of adverse effects of waste waters using snails and larvae of fish. Operating these and carrying out daily counts of migrating fish should keep Chris Humphrey, Bob Pidgeon, Dave Walden and Ian Brown thoroughly occupied and away from the flesh pots and other delights of downtown Jabiru. OSS has advertised some scholarships for honours students to work on various aspects of freshwater snails to help refine monitoring techniques. If this venture is successful it could be a very frantic/hectic/confused? scene on the banks of the old Magela.

The Toxicology section will be busy with routine toxicity testing and characterisation of the major toxicants in retention pond waters around Ranger. They will also conduct a test on the toxicity of cyanide to local species - volunteers are welcome! Ross Hyne and Greg Rippon will be continuing their electron microscopy studies of responses of *Hydra* to heavy metals and they hope to extend the work into the field this season. Greg is continuing his work on the induction of Cytochrome P-450 as an early indicator of stress in test animals. Michael Mannion departed ARRRI in October and re-migrated (Bob Hawke would be proud of that!) to WA to culture little green things with B-carotenes for a company near Geraldton. We doubt he'll survive the winter. His replacement is eagerly awaited.

Work did carry on here during the last dry season though Greg Rippon and Ross Hyne have been kept busy with editing toxicity testing protocols and getting the lab ready for NATA registration. Rumour has it that John Bywater is doing the same over the fence at Ranger. They claim to be longing for the day when they can return to the lab and do some research. Since Mike Mannion's departure Greg has also assumed the role of chief fish vet and has had a lot of post-mortems recently. The stock gudgeons have been croaking (?) and it would appear that the culprit is a large red repulsive nematode (or two) in the liver.

As with most places foolish enough to work with invertebrate communities there is always a backlog of samples to be sorted and identified. The latter is a rather staggered process at ARRRI as the taxonomy of some important groups is still being examined by consultants ('experts' from the South!). Peter Dostine has had the task of assimilating all this and has been assisting John Hawking in confusing the issue by collecting still more Odonata larvae to rear and match with adults. Two programs of research using benthic macroinvertebrates are currently being conducted by Peter Dostine and Chris Humphrey in the upper South Alligator River catchment in the vicinity of the Kakadu Conservation zone: The first is a baseline study in the SAR documenting seasonal and spatial changes in macroinvertebrate communities prior to possible mining at Coronation Hill (this

program has been ongoing since 1987); the second is a collaborative study between ARRRI and Data-Doting Dan (Faith) (CSIRO Canberra) with the aim of developing and testing procedures for community-based biological monitoring in the Alligator Rivers Region. The latter study includes a planned experimental manipulation of the discharge of mine seepage into Rockhole Mine Creek, a small SAR tributary polluted by previous mining in the area. Such an experiment provides an excellent opportunity to conduct a test of any proposed monitoring and analysis procedure through all stages from baseline data collection to post-impact assessment. The study aims in particular, to overcome the problem of statistical rigour (including pseudoreplication) and also to investigate the optimum method of improving the power of biological monitoring techniques used in ARRR streams. Following two years of pilot study (1989 and 1990), the experimental manipulation will be conducted in 1991.

During the last dry season Bob Pidgeon and Ian Brown were kept busy doing fish community surveys in lowland billabongs on the Magela Creek system below Ranger and pre-mining (???) fish surveys in the South Alligator River around Coronation Hill. Changes in Magela Creek billabongs in relation to buffalo removal were the subject of the last ASL door prize winning address. Changes in the fish communities of backflow billabongs have continued. Hopefully the South Alligator work will continue next year even if mining does not proceed. It would also be interesting to see how the upper South Alligator, surrounded by "clapped-out buffalo country" responds to buffalo removal, if not mining (we know John Bywater would be very interested!).

Till next time ..... come on RAIN!

PAPUA NEW GUINEA

Correspondent: Dr Paddy Osborne, Biological Sciences, The University of PNG, University P.O., National Capital District, PNG

Carried over from last issue...

Ross Smith from Ok Tedi Mining describes trials and tribulations from working in the wet west:

"Barre Kare is now entrenched in Townsville and Jim Tait and Ian Roderick have settled into Tabubil. Jim has been learning how to wax lyrical about the environment to local politicians and has found that alcohol is a useful precursor. Andy Maie is back in the Environment Department and Jetrapa Tinkerame will visit us briefly from UPNG soon to collect fish for mercury analysis. The hopes to gain some idea as to the source of the

mercury in fish from Lake Murray. I visited the U.S.A. to examine an hydroacoustic fish finder, which was very impressive. The technology exists now to allow you to drive a boat while your computer counts the fish in the water below you. In open waters, the computer can also drive your boat. Unfortunately, we are not at that stage yet as Jim Tait, Kayeman Bakowa and found out as our new 10m boat started sinking. As good scientists, we didn't panic and finished processing the catch first. After draining the battery while draining the bilge pumps, we discovered that the self-draining deck drained into the bilge. On the same trip we ran out of fuel and had to tie up on the Indonesian side of the Fly River until a passing copper barge rescued us. We did catch a lot of fish though. Despite the setbacks, work continues at the usual frantic pace, with rarely more than 50% of the staff in Tabubil at any one time."

...and for this issue

Ross Smith from Ok Tedi Mining Limited describes more trial and tribulations of working in the wet west:

"Andy Maie is back in the Environments Department and Jetrapa Tinkerame visited us from UPNG to collect fish for mercury analysis. Jetrapa hopes to gain some idea as to the source of the mercury in fish from Lake Murray. He collected a lot of fish tissue samples from the middle Fly, and learnt a lot about biological sampling in the process, when Lake Pangoa produced a catch of 480 in 24 hours. A late night was had by all processing the catch. A late night was also had by Ian Roderick and Stanley Jogo when they sampled the same site two months later and not only caught 500 kg but also managed to run out of fuel in the process. They were found paddling a boat load of fish with bamboo poles at 9:30 pm, and were very happy to be rescued. The same two, along with myself, had a similar thing happen in the Ramu River estuary last week (you'd think we would learn! [... well, no, actually - *Eds*]). It took nearly four hours to paddle to the research vessel, even though we swapped our dingy for an outrigger canoe half-way there. (Bargain! Bet the lab manager was pleased - *Eds*).

"Jim Tait has been amusing himself lately by designing new torture devices for *Macrobrachium*. The end result should be an extensive sampling program for one of the most abundant invertebrates, and garlic prawns for the participating staff. Jim, Kayeman Bakowa and I recently caught a new catfish species for this study, and blew our previous weight record with a 24.2 kg *Arius agreutes*(?). This monster was caught when it consumed a smaller sibling that was enmeshed in one of our nets. Cannibalism does not pay.

'Our non-biological work continues apace, although with fewer mishaps (because the non-biologists spend less time in the field!). (More like the biologists have trouble returning from the field - *Eds*) Eric Wolanski, from AIMS, is confident he has the data to model sediment movements in the Fly Estuary , and Delft Hydraulics in Holland are

working on our marine chemistry model based on material collected by Tom Morris. AIMS and Delft will be continuing their work with us next year. Lee Benson and Richard Pearson of the Australian Centre for Tropical Freshwater Studies are doing a literature review on artificial substrate sampling for us. That should be followed by field trials next year. In January, Biosonics of Seattle, Washington, will be training us in hydraulic sampling and supplying equipment to do the job (do they know what you do to equipment? - "I'll trade you that mass spectrometer for a kilo of beetle nuts" - *Eds*). We are looking forward to our annual leaves so we can get a break before the rush next year."

At UPNG, Robin Totome is writing up his post-graduate diploma thesis on stratification in nutrient-enriched Waigani Lake and has to finish by the end of the year. Mary Walta is collecting sediment samples from the creeks draining the urban areas of Port Moresby. She is investigating the heavy metal content of *Ipomoea aquatica* which is harvested from these creeks and sold as a vegetable in the local markets. She recently took a break from work to produce James; mother and baby are both well, and mother is now back at work.

This will be my last contribution to PRS as PNG correspondent. I am leaving PNG after a very happy and exciting decade in the land of the unexpected. At the end of January I will start work at the University of Western Sydney. Ross Smith has kindly agreed to take over as PNG correspondent. Please direct news items to him: Environment Department, Ok Tedi Mining Limited, P.O. Box 1, Tabubil, Western Province, PNG; Fax (675) 589390; Phone (675) 583332/583347.

PRIORITIES FOR WATER RESEARCH: HERE WE GO AGAIN?

by Leon Barmuta

With the demise of the Australian Water Research Advisory Council (AWRAC) and the rise of the Land and Water Resources Research and Development Corporation (LWRRDC), rumours are rife that the new Corporation will seek to determine a fresh set of priorities for funding aquatic research in Australia. At the last teleconference of the A.S.L. executive, several members were concerned that the wheel would be reinvented yet again. Whilst we realise that any new administration will seek to review and possibly change research priorities, the A.S.L. executive is anxious, first, that limnologists be consulted and, second, that such a review be done as quickly and cheaply as possible with minimum duplication of the lengthy process already undertaken by AWRAC and its predecessors over the last decade.

As yet no formal announcements have been made about LWRRDC's intentions. However, the A.S.L. executive feels that it needs your opinions on the following questions:

1. **Should A.S.L. formulate a list of priorities for water research in Australia?** The Ecological Society of Australia recently developed a list in consultation with its interested and active members. Such a list can help the executive react quickly to calls by governments for comment, and form a basis for our lobbying activities.

2. **Should A.S.L. lobby on research priorities on its own behalf, in concert with closely related societies (e.g. E.S.A., A.S.P.A.B., Fish Biol.) or should we leave it all to FASTS?** Leaving it all to FASTS obviously demands that we remain a full member. At the next A.G.M. of A.S.L. (see Secretary's Desk column following) you will be asked to vote on whether to pay more money to stay as a full member. We need to debate this through the Newsletter before the A.G.M.: YOUR CONTRIBUTIONS AND OPINIONS ARE WELCOME. Get the hint?

3. **Can you think of any critical areas for water research that need to be pushed by A.S.L.?** Since AWRAC last parleyed extensively on priorities in 1987, the political agenda has grown to include issues such as global climate change, toxic wastes and large-scale pulp mills.

So what are the priority areas at the moment? To start the debate rolling amongst you, the members, we would like to draw your attention to a document produced by the National Water Research Program of the (then) Department of Resources and Energy entitled *National Water Research Seminar. Discussion Papers. Canberra 17-18 September 1987* published by AWRAC, ISBN 0 642 11890 6. Fourteen review papers were collected

in this volume. Of most interest to A.S.L. members were *Stream ecosystem research in Australia: problems and strategies* by P.S. Lake (pp. 49-80), *A review of research of opportunities* by P. Cullen (pp. 81-100) and *The ecology of reservoirs, lakes and wetlands* by A.J. McComb and W.D. Williams (pp. 201-212).

For those unable to view a copy of this document, A.S.L. executive asked that the Newsletter carry a brief summary of the major priorities identified by these three reviews. So here goes.

For lotic environments, Lake identified five high priority areas from a list of fourteen (p. 68). They were:

1. Role of disturbance in stream community structure.
2. Patterns and levels of primary and secondary production.
3. Nutrients in rivers - resource spiralling and nutrient limitations.
4. Catchment disturbance and stream ecosystems.
5. Specific direct effects of humans on rivers, especially changes wrought by river regulation.

Cullen identified thirty areas worth funding; the six he chose as highest priority were (pp. 97-99):

1. Development of eutrophication models appropriate for Australian conditions
2. The ecology of water plants, including their control by biomanipulation.
3. Coupling of catchment land use with water quality using long-term small catchment-scale studies.
4. Microbial research, especially in improved monitoring, identification and epidemiology of pathogens and nuisance species.
5. Studies of the mass flow of nutrients and pollutants in aquatic ecosystems.
6. Robust interpretation of monitoring data sets.

McComb and Williams listed 21 specific project areas for lentic research. Their top six were (p. 209):

1. Development of graduate schools capable of doing excellent, cost-effective research.
2. Ecology of the River Murray.
3. Ecological processes, especially physical mixing.
4. Management and control of algae.
5. Salinization.
6. Effects of catchment phenomena on lakes and wetlands.

All of the authors detail these choices, and lots of common themes run through both their final five or six and their more extensive lists of possible research topics (e.g. better taxonomy, improvement of various techniques, etc.). Research on some of these topics has commenced, but unlike politics, four years is not a long time in field-based limnological research. All of the major priorities identified above are still current; there may be others that need to be pushed for now. If you really can't get a hold of the book to look at the original articles, let me know and I will photocopy the bits you want to read in more detail.

If you have any ideas or pet topics that you feel A.S.L. should get onto the funding agenda, please let us know by contacting your state executive member, by writing a letter to the Newsletter, or to the secretary or president. A.S.L. is vigorously pursing active representation of professional limnologists in the new Corporation; it is only by your participation in this way that the A.S.L. executive can be confident that it is reflecting the wishes of the membership accurately.

FROM THE SECRETARY'S DESK

"FASTS FEES TO RISE: DO WE STAY IN?"

FASTS fees: In the last newsletter I informed members that FASTS had sent a notice that they wished to increase per capita fees to $3.80 (from $2.50) and henceforth to index their fees to the CPI. This will have to be voted on at the next AGM. In the meantime, if members have views on the usefulness of the ASL being a member of FASTS, then please write to the editors of the newsletter. The executive would greatly appreciate any feedback from members about what they think the benefits to the society are of belonging to this organisation.

A.S.L. representation on LWRRDC: On 16 November 1990, I wrote to Dr. D. Widdup, Executive Director of FASTS seeking their help in lobbying the LWRRDC to become what is known as a representative organization (as we understand it, these representative organizations will have a major impact on the way the corporation will be run). Dr. Widdup wrote back, enclosing a copy of a letter he wrote on 21 November to the responsible minister, John Kerin, which reads in part: "I am strongly of the view that the Land and Water Resources Research Development Corporation should have a representative from the Australian Society for Limnology as this is the body with major relevant expertise with regard to water. I appreciate that you have given a certain amount of independence to the corporation. However, I would appreciate whatever you can do in ensuring that there is adequate scientific representation."

60 MINUTES

ASL Executive Meeting by teleconference, 9 Nov 1990 (Meeting began at 4.30pm)

Present: R.Marchant, S.Bunn, P.Davies, R.Oliver, L.Barmuta, J.Hawking, F.Sheldon, P.Horwitz, R.Congdon, B.Pidgeon.

Apologies: M.Hart, R.Norris, S.Halse.

1. Lorne Conference: The secretary reported that Erskine House had been booked for the conference and that the venue had been renovated since it was last used by the ASL in 1986. Details of the conference and booking forms would be sent out early in 1991, probably with the first issue of the newsletter for next year. There was some discussion about the production of conference guidelines and it was finally resolved that the secretary should write these and circulate them to members via the newsletter.

2. FASTS: The secretary reported that he had received a request from FASTS for an increase in per capita fees from the current $2.50 to $3.80 (and for the fees to be indexed to the CPI from 1990 onwards). He had written to FASTS explaining that nothing could be done about this request this financial year (1990-1991) because any increase would have to be ratified by the members at the next AGM, which would not take place until July 1991. It was suggested that a summarised version of these events be published in the newsletter to inform members and to prepare them for a vote on increased subscriptions at the next AGM; it was also suggested that members be asked for their opinion on the usefulness of the ASL being a member of FASTS.

3. Land and Water Resources Research and Development Corporation (LWRRDC): The president summarised his attempts to have the ASL recognised as a representative organisation by the new corporation. It seems that representative organisations will have a major influence on how the corporation runs and sets it research priorities. Thus it is important that the ASL tries to acquire representative status. The secretary was asked to write to FASTS to solicit help to achieve this. The president will write again directly to the LWRRDC board about this matter. The president pointed out that it was also important for the ASL to have an agreed upon list of research priorities to put before the LWRRDC. To initiate this process L.Barmuta was asked to write a short article for the newsletter describing the documents (by P.S.Lake, P.Cullen and A.McComb) outlining limnological research priorities that were produced in 1987 for AWRAC (the predecessor of the LWRRDC). It was felt that priorities had not changed much since then and that the documents could form the basis of any submission by the ASL. Members will be asked to send any comments and ideas to the newsletter.

4. ASL special publications: It was suggested that preliminary taxonomic keys and associated material that were presented at taxonomic workshops held at the Murray-Darling Freshwater Research Centre should be considered for publication by the Bulletin editor. A note will be published in the newsletter reminding members about the status of the Bulletin and asking for ideas about any other topics that would be suitable for inclusion. The bibliography that currently appears in the newsletter is available on disk; this fact will also be advertised in the newsletter.

5. Newsletter: L.Barmuta (editor) reported that production was going well with the editors receiving submissions from members who had previously been silent. Costs were currently $800 an issue, which were slightly higher that J.Davis achieved in WA. L.Barmuta suggested that soliciting paid advertising would be one way to offset costs. The executive agreed that this was an excellent idea. L.Barmuta and T.Doeg (the other editor) felt that only commercial enterprises should be charged for ads; learned societies and other non-profit organisations could advertise free of charge. This was agreed to by the executive. The secretary will write again to the limnological supply company in Tasmania asking if they are interested in running an ad in the newsletter.

The meeting finished at 5.30pm. The next executive meeting will be held in the new year after the details of the Lorne conference have appeared in the newsletter.

R.Marchant, Secretary

MAIL-BAG-SOAP-BOX CORNER

WHO HAS SHARES IN ACCOMMODATION IN LORNE?

At the risk of probably offending some of the hardest working members of ASL, I feel compelled to write to complain, whinge and generally moan about the fact that the 1991 Conference is to be held at Lorne. Please don't be mistaken, there is nothing wrong with Lorne as a place, nor anything wrong with the conference held there last time, but to return there within five years seems a strange thing for a limnological society to do in addition to being just plain boring.

The small amount of opinion that I canvassed here puts Monash as the favoured alternative. Students from Murdoch and presumably other far flung corners of Australia would be keen to see the facilities available at the larger campus and to use the library which has a far better freshwater collection than is available in the west, at least. Although this could be done before or after a conference held anywhere in Victoria, it all adds to the cost.

Alternatively, if we are to travel to the southern coast, wouldn't Warrnambool CAE, or whatever it has become care of John Dawkins, be a more interesting limnologically interesting alternative?

I realise that I should be keen to attend the conference for its scientific content regardless of wherever it is held, but I'm afraid I just cannot summon up any enthusiasm for a return trip to Lorne when I know there are far more interesting freshwater areas in Victoria or more convenient places for a conference (e.g. any Victorian tertiary institution).

Finally, dare I risk becoming even more unpopular by asking if the reason we are going to Lorne is because the conference organisation has been left up to the same people who organised it last time? Surely there are enough ASL members in Victoria to share the responsibility of conference organisation a little more than it appears to be the case at present?

Jenny Davis

The ASL executive responds: Points taken. It's a bit late to change venues now, but Lorne really did win out over alternatives available at this time. The Organising Committee is more than happy to help organise billets in Melbourne for delegates wishing to stay on to consult colleagues, use libraries or attend the Entomology Society Conference immediately after the Congress. Melbournians wishing to volunteer to host visitors should contact either the editors or the secretary pronto - Leon Barmuta.

Dear Editors,

I thought readers of your eminent journal might like to know how Dr. Andrew Boulton, late of the University of Western Australia, late of Monash University, late of Adelaide University and about to be late of Arizona State University, is getting on. The answer is fine and even better. At present, he is spending a postdoctoral year at the Arizona State University, Department of Zoology, with Prof. S.G. Fisher. I visited him recently and report that far from developing an American accent, they seem to be taking up an Australian accent. Also, not a few are considering wearing thongs and many have gone over to a diet of carrots. The last communication I had from him was a postcard sent from Death Valley. It showed a salt lake (Badwater) at 280 feet below sea level. Andrew asks in the card: "How low can limnology get?" (Appears he's picked up an American sense of humour though - *Eds*). Even I can't answer that, but many will suggest that I am the best placed to do so! For anybody so foolish as to want to write Andrew, his address is Department of Zoology, Arizona State University, Tempe, Az 85287-1501, U.S.A.

Bill Williams
University of Adelaide

FABULOUS FRESHWATER FINLAND

by Brian Timms of Avondale College, N.S.W.

The "Dynamics and Use of Lacustrine Ecosystems" Conference in Helsinki, Finland (August 6-10, 1990) was attended by almost 150 limnologists, comprised of around 80 Finns and many others from Europe, but few from elsewhere. Five Russians were on the books but, in typical style, most did not show. I took the prize for travelling the furthest to the conference, though I had a little competition from Lino Pizzolan from Patagonia and Hillary Masundire from Zimbabwe (the other two from the Southern Hemisphere. Yes, Hillary used the upside down map to orientate our hosts to the real world.

For Some obscure reason, the conference was held 20 minutes away from our city centre accommodation. So we all spent more than our loose change on the expensive bus system (but to be fair, everything is expensive in Finland - e.g. Big Macs cost A$12!)

There were 4 days of papers, all presented sequentially and arranged in sessions titled:

1. Bacterial and microbial processes
2. Phytoplankton dynamics and community structure
3. Productivity and energy flow
4. Water pollution and water management
5. Fish populations and fisheries
6. Monitoring and modelling
7. Interactions between trophic levels.

Many sessions were commenced with invited lectures such as Bob Wetzel's "Clean Water: A Fading Resource", Brian Moss's "Use, Abuse and Management of Lakes and Rivers" and Maciez Gliwicz's "Can Ecology Help in Keeping Water Clean?" These were really brilliant and with many of the standard papers by participants, I look forward to their appearance in print in the "Developments in Hydrobiology" series. Perhaps I should add that I spoke on the conservation status of NSW lakes.

There were also 34 posters to study during the breaks. These were featured with their authors at special times, though this meant de facto concurrent sessions and their attendant problems.

Highlight of the conference for me was the field trip on Wednesday through the beautiful Finnish countryside to the equally appealing L. Paijanne. Here our party boarded a large pleasure boat to cruise the lake where we watched a trawling operation clearing the culturally enriched lake of coarse fish. Twenty tonnes were caught in a 4 hour trawl,

including a few pike of culinary quality. Other conference participants went to water treatment works and to the old town of Porvoo for some real culture.

At the conference, the president of the Finnish Limnological Society, Prof. Jouko Sarvala, addressed us on trends in Finnish Limnology during the last decades. Coming from a relatively lakeless land, I was overwhelmed by the huge number of Finnish lakes (the scientists say 187,888 as against 198,000 if you believe the government figure), and their importance in Finland (10% of surface area). However, on a private tour afterwards of 3000 km up and down the length of Finland, it seemed that most of their lakes are rather similar. There may be few lakes in NSW, but the variety is enormous and the potential for study immense. Still, my limnological life was enriched by the conference and Finland, so thank you to the Finnish limnological Society for hosting the conference, to Avondale College for supporting my travel there, and the SPCC of NSW for sponsoring my research.

A TOURIST IN SWEDISH AND ENGLISH WETLANDS

by Kim James

'The International Workshop on Wetland Management and Restoration' I attended at Lake Hornborga, a Ramsar site, in Sweden from September 12-15 was not at all what I had expected. From my Australian upbringing 'restoration' means 'to return a wetland to what it was before being interfered with by European man' and 'management ' means 'to manage so as to preserve the natural state of a wetland whilst allowing a level of none intrusive usage'. However, in Sweden (and England) wetlands have been manipulated to meet the needs of the public over such a long period that a return to a natural state is not possible; there are no records of what the natural state was. Restoration and management at this Workshop meant changing wetlands to meet the new public need for rich bird habitat reserves and to cater for bird watchers.

This process of change at Lake Hornborga was highlighted by the mayor of Falkoping, the town nearest the Lake and the gliding centre of Sweden, who proudly announced at a civic luncheon held in our honour that in 1993 the town would be celebrating the 8000th year of habitation in the region. During this time the Lake has been used for fishing, reclaimed for farming (the water level has been lowered 5 times since 1802), and used as a source of *Phragmites australis* for roof thatching. By 1965 the Lake was overgrown by *Phragmites australis*, *Carex acuta* and *Salix sp*.

In 1977 restoration plans for Lake Hornborga were approved by the Swedish Parliament. The Workshop focused on the restoration of Lake Hornborga which will provide case study information for the restoration of other degraded wetlands. Restoration involves;

(i) raising the water level again by 0.8 m to create open water for swimming birds
(ii) clearing trees from the banks to increase the area of grazing meadow for geese
(iii) grooming the grazing meadows by cattle grazing or mowing so that the grasses are in just the right condition to entice migrating geese down
(iv) removing most of the *Phragmites australis* (1,100 ha)
(v) encouraging the diversification of plant species in the wetland

We toured these restoration works in Swedish army, troop carrying, tracked vehicles, great fun. Even before restoration began, the Lake had a rich bird fauna (32 species) and it is an important stopover for migratory birds. It is intended that these restoration measures will increase the number of birds and species present and visiting. This was the management and restoration objective in most of the wetlands described in papers presented at the Workshop. From the number of tables of nesting pairs we were shown, it was clear that there is an annual competition between Scandinavian (and British) wetland managers to attract the most birds and the Workshop was the venue for the award. There was also a heated debate between managers as to whether mowing or cattle grazing was the best way to groom the grazing meadows for geese.

The reduction of *Phragmites* species in wetlands is a major task and the Swedish EPA has put a lot of money into developing slashers for Lake Hornborga which dice *Phragmites* rhizomes after the stems have been burnt or cut. The pride of the slashing fleet is a customized $440 000 tractor which will reach down to dice whilst it is just floating.

In England I visited Max Finlayson at the International Wildfowl and Wetland Research Bureau (IWWRB) reserve at Slimbridge, the Royal Society for the Protection of Birds (RSPB) reserves at Tichwell and Snetisham and Hickling and How Hill Broads in Norfolk. The number of IWWRB (8) and RSPB (over 60) reserves in Britain is testimony to the enthusiasm of the bird watchers as these reserves are predominantly funded by the public. Again these wetlands are managed to attract numbers and diversity of birds. They are laid out to cater for bird watching, a national sport to rival cricket and soccer. Even on weekdays and out of season, the walkways between pools and the hides at the reserves were filled with people all wearing 'Barbour' coats (a waxed raincoat with a corduroy collar) and 'Hunter' wellies (green) and weighed down by binoculars, telescopes and tripods, all standard gear. A disturbing aspect of this preoccupation with birds is that I could not find any information which focused on the plants or other animals of the wetlands amongst the printed information for the public at the IWWRB and RSPB reserves I visited. This reinforces the public's preoccupation with birds. Thankfully, the Broads Authority provides information on BIRDS, other animals and plants.

For me, the value of the Swedish Workshop and my tour of British wetlands was to see wetlands which are run to meet the public demand for birds. I also realize how fortunate we are in Australia to have wetlands which are natural, self sustaining systems with their diversity of plants and animals intact. All we have to do is protect them.

THE INTERNATIONAL CONFERENCE ON THE CONSERVATION AND MANAGEMENT OF RIVERS, YORK, 10-13 SEPTEMBER 1990

by Leon Barmuta

This conference was organised by the Nature Conservancy Council of Great Britain, and Dr Phil Boon and his colleagues did an admirable job in getting the whole thing together. Presentations and posters came from all continents except Antarctica, although there was obviously a substantially higher proportion of European contributions - from both sides of what is left of the Iron Curtain.

Of the oral presentations the content varied from the philosophical, through the nuts and bolts of conservation assessment, river restoration and rehabilitation to the legislative and administrative instruments and inhibitions.

Because legislative procedures vary so much between countries, several of those papers were the least satisfying. The speakers lapsed immediately into the argot of their host bureaucratic culture replete with all the grammatical and linguistic barbarisms that render so many administrative documents impossible to comprehend, even when written. Nevertheless, S.A. Starlund from Washington State impressed many disbelievers with his truly impressive efforts at involving all the "grass roots" (even the hostile ones) in planning for and managing scenic rivers. The environmental lawyer, P.A. Smith, gave a dazzling potted history of the battle to save the Derwent in Yorkshire from dredging designed to please the pleasure boat lobby; the legal battles are presently dragging through the House of Lords and provided pointed illustration of the Byzantine complexities of rights and precedents which most of Australia is happily free of.

The feeling that we in Oz are very lucky is reinforced when talking to our South African colleagues. They face many problems similar to ours, only sooner. Rapid population growth, coupled with land degradation and salinization is forcing very unpleasant choices on the river managers of that country. Large inter-basin transfers of water, extensive river regulation, and draconian restrictions on water use are in our future too, but South Africa is facing these changes within the next 10 years. I only hope that the political situation continues to improve rapidly enough to facilitate the immense exchange of scientific information that needs to happen if our common problems are to be resolved.

In terms of research, the New Zealanders continue to provide a shining example of just how much high quality, relevant applied research can be accomplished in a small country in even more economic strife than Victoria. Biggs, Quinn, Collier, McColl, Winterbourn, Crowl and Townsend in their respective posters and papers presented a variety of short and long term studies addressing issues as diverse as buffer strips and catchment land use through to assessment of conservation status. Several other papers addressed the vexed issues of conservation assessment, and I am happy to say that the work done by Luisa MacMillan, Carol Kunert and Margaret Blakers at RMIT compares very favorably, and their methods are being adopted and adapted elsewhere.

While Australia, New Zealand and some countries in Africa and the Americas have some wild lotic habitats remaining, the same cannot be said for Europe. Several presentations showed ingenious and often "environmentally friendly" engineering solutions to restore or rehabilitate habitats. However, it costs, and it is very difficult to decide what the restoration should look like. Put simply, the changes wrought in 2000+ yr of close settlement are often irreversible. Again, we on this continent are fortunate; it is much cheaper to save things than to try to put them back.

For me, however, the geomorphologists had the most to say about the scales that vex managers. M.D. Newson provided an excellent overview of catchment processes - a physical geographer's equivalent of Hynes's "A stream in its valley"; Brian Finlayson from Melbourne underscored the importance of rigorous historical geomorphology in telling us what is possible in a catchment; and Martin Thoms and Keith Walker from Adelaide presented a very neat story on the effects of weirs on the Murray. I guess I found those interesting because I'm not a geomorphologist; happily I heard similar sentiments expressed by other professions.

In all, I came away feeling that in certain parts of Australia we are not faring too badly in river conservation. We still have huge problems, but fewer legislative and cultural impediments to doing something about them. We still have rivers we can choose to keep in near pristine condition, others we have to rehabilitate or restore, and still others which will be impossible to control. As ever, it is the lowland, the semi-arid and the tropical systems that are most poorly known. We share similar problems with parts of Africa, Asia and South America and we can contribute a lot to solving other people's problems by addressing our own.

Oh yes, the Overseas Door Prize? Professor Nicholas Polunin from Switzerland suggested that the long-term solution to global conservation problems was to genetically engineer a *Homo super-sapiens* to replace the current model populating the planet. Suck eggs, D.M. Scienceperson, you never thought of that one before, eh?

RESEARCH CENTRE OF THE MONTH

CEPARNIC - Ilha do Cardoso

This information is based on data received from Dr. Tim Moulton in March 1990. Information is dated November 1989 and January 1990. We hope it is current (12 months is a long time in Limnology!), but it's still interesting nonetheless. Contemplate the lifestyle as you sit in your cramped office while it's cold outside.

Ilha do Cardoso (Cardoso Island) is situated in the very south of the state of Sao Paulo, 25°12'S (just below the Tropic of Capricorn) and 48°E. It is about the same latitude as Fraser Island in Queensland or just north of La Paz in Baja, California.

The island is 30 km long, 10 km at its widest and about 850 m at its highest. It is separated from the mainland by a very narrow and tortuous channel in the south and an open bay in the north. The majority of the 22,500 ha is covered by Mata Atlantica (Atlantic Rainforest) forest, surrounded by Restinga (sand-plain vegetation), bordering on heath and sand-dune vegetation close to the sea. The estuary side of the island is lined with mangroves, and the sea side has exposed rocky coast and sandy beaches.

The climate is wet, wet, wet: annual precipitation is 2,340 mm, wettest month January, 420 mm, driest month August, 57 mm.

CEPARNIC (Centro de Estudos e Pesquisas Applicadas de Recursos Naturais da Ilha do Cardoso = Centre for Study and Applied Research of the Natural Resources of Cardoso Island) is situated at the northern end of the island, close to the channel that separates Ilha do Cardoso and Ilha Comprida (a nearby low-profile barrier island composed of recent sands). There is a tidal river (good for swimming), the open sea (good surfing if you are careful of the currents) is within 2 km, mangrove, sand-plain vegetation and secondary forest is within a 100 m radius.

The principal tasks of CEPARNIC lie in the conservation of the several important habitats that are represented, and in using the knowledge gained from their study in an applied manner.

The centre falls under the aegis of the Coordenadoria de Pesquisas em Recursos Naturais (Coordinator of Research in Natural Resources) which is part of the Secretaria Estadual do Meio Ambiente (State Environment Secretary). At the beginning of 1989, the Coordenadoria passed the control of the State Park of Ilha do Cardoso to the Funcao para Conservacao e a Producao Florestal do Estados de Sao Paulo. Under this new

organisation, it is hoped that the functions of the State Park and the Centre will be put on a more rational and self-sustaining basis.

The principal item for conservation is the Atlantic Rainforest (Mata Atlantica) of the island, which is relatively intact and covers the mountainous areas (the majority of the island). Mata Atlantica is the name given to the coastal forests of the Sierra do Mar in Brazil; it once extended as a continuous belt from the north of Bahai State to Santa Catarina in the south. Now it exists in fragments, which cover only 2-5% of the original area (depending on what you class as "remaining area"). Although Ilha do Cordoso is only separated from the mainland by a narrow strip of water, the barrier was possibly responsible for the survival of the forest in its relatively intact state.

In contrast to its image abroad, Brazil has some very strong environmental movements. The people of Sao Paulo are well aware that the Mata Atlantica has been devastated, and that it is important to preserve the remaining forest. This concern is witnessed by the high public profile of the conservation group "SOS Mata Atlantica".

CEPARNIC was constructed in 1976 and was later extended with aquaculture facilities. A huge amount of money was spent. The facilities comprise a complex of four large laboratories, eight smaller laboratories, seminar room, library, museum, a separate aquaculture lab complete with outdoor concrete ponds, large covered area for larval culture, tanks, piped sea and freshwater, a separate administration building, dormitory complex for 60-70 people, houses for general workers and six houses for scientists. A hydroelectric scheme was constructed in the mountains to supply power to the centre.

There is plenty of water of excellent quality which is piped from the mountains. The toilets flush. The living quarters are provided with screen which keep out the majority of biting insects, but unfortunately, there is a "no-see-um" which can enter through the screens, and which is a problem at times. Solutions lie in burning mosquito coils, sleeping under a fine mesh mosquito net, or stoicism.

However, it must be admitted that the centre has been under-utilised. The hydroelectric scheme did not work and power must be supplied by generators. These are turned on for about 4 hours in the evening and 4 hours during the day (although the laboratories have 24 hour power from a system of lead-accumulator batteries). Outside generator hours, there are no hot showers or electricity in the living quarters. Late at night one uses gas lanterns or flashlights for light. The aquaculture facilities were abandoned, but remained intact and have now been reactivated. The laboratory complex has been mainly used by scientists for brief field collections. In recent years, the dormitories and seminar rooms have been used by courses in environmental education.

As of April 1989, major equipment at the centre comprised some compound microscopes, a stereo microscope, computers, meteorological equipment, pluviometers, surveying equipment, an oven and furnace, controlled temperature water bath, refractometers, ph and conductivity metres, collecting equipment (for algae, invertebrates etc) and a gas-powered refrigerator. CEPARNIC has a small fleet of boats and two larger research vessels. Visiting scientists may use the research equipment on the basis that it does not interfere with current research (some equipment can be hired in Sao Paulo) and the boats may be hired.

In July 1988, Dr. Tim Moulton (an Australian with diverse experience in ecology) moved to the island to take up the position of Research Director. The idea behind having the research director living on the island is to ensure that the current research is carried out more effectively and to attract other scientists to the island - as a foreigner, he has better access to outside sources of people and funds, which are seen as a possible means for improving research and facilities.

Current research: There is an active programme of botanical research on the Mata Atlantica and Restinga, mainly carried out by the Botanical Institute of Sao Paulo. Some active research on the structure and function of mangroves and their associated macroalgae is being conducted by the Botanical Institute and the University of Sao Paulo. vertebrate studies include the conservation of marine turtles, surveys of mammals and birds, and other work on bats, rodents, freshwater fish, reptiles and amphibians.

Potential research: Ilha do Cardoso has much mountainous, dissected terrain with many small streams. Some of the streams flow directly from the mountain to the sea, most form small rivers which flow across the sand plain and are tidal at their mouth. Essentially in an undisturbed condition, these streams offer ideal opportunities for studies on community structure and species associations, stream fauna as indicators of the chemical and physical environment and the autoecology of vertebrates and invertebrates in streams.

For further information, the postal address is (and hopefully still is):

Dr. Tim Moulton, Research Director, CEPARNIC, Caixa Postal 43, 11900-Cananeia, Sao Paulo, Brazil.

RESEARCH CENTRE OF NEXT MONTH

BICER - Baikal International Centre for Ecological Research

The following information is edited from notes from an international meeting held on April 2-5, 1990, at Irkutsk, USSR, and a draft agreement on the proposed formation of the centre (kindly supplied by Brian Timms). The meeting was hosted by the Siberian Division of the Academy of Sciences of the USSR and attended by representatives from Belgium, France, The Netherlands, Peoples Republic of China, Spain, Switzerland, United Kingdom, United States of America and the USSR.

The Baikal International Centre for Ecological Research (BICER) is a proposed research centre based on Lake Baikal. The Centre is to be "an association of organisations of countries interested in cooperative studies of the unique ecological systems of Lake Baikal and its surroundings." (Article 2 of the draft agreement). Its purpose will be "to strengthen scientific, educational and humanitarian cooperation and to protect Lake Baikal as a unique property of international importance by providing information obtained through joint investigations between scientists of USSR and other nations" (Article 3). (Do you think that was written by a committee? - *Eds*)

Lake Baikal is the deepest lake in the world (1637 m). It contains some 23,000 cubic kilometres of very pure freshwater (about 20% of the liquid freshwater of the world). The catchment basin is 560,000 square kilometres and inhabited by only 1.5 million people. Although there is not much industrial or agricultural activity in the catchment, the standard of the technology is such that the amount of pollutants delivered to the lake are substantial. The ecosystem of Lake Baikal is unique, and ecologists believe it's very fragile. Therefore, a special decree to minimize pollution was enacted by the Soviet Government in April, 1987. Under the UNESCO Convention on the protection of the world cultural and natural heritage, Lake Baikal is now a candidate for the World Heritage List.

The main fields of research at BICER (Article 3) will include, but not be limited to:

i) interdisciplinary studies of Lake Baikal in comparison to other lake systems through hydrodynamical, hydrochemical, hydrobiological, climatological, remote sensing, limnological, computer and mathematical modelling methods to create mathematical and conceptual models of the ecological systems of Lake Baikal and other large lakes;

ii) studies of the mechanisms of speciation of the unique complex of endemic Baikal organisms and of the evolution of their nucleic acids and proteins;

iii) studies of Baikal as a "background" freshwater body, aimed at an understanding of the processes of global turnover of elements and global transfer of air-borne pollutants;
iv) development and optimization of monitoring methods and equipment suitable for Baikal, for other large lake systems, and for the world's oceans;
v) interdisciplinary studies of the history of the Baikal depression, with special emphasis on the problems of global climate changes and on the contribution of human activities to these changes.

Other tasks of the Centre will include:

i) Organization of international symposia, seminars, and workshops addressing the major directions of its activities;
ii) Education of the public, students, and graduate students through exchange programs ("I'll swap you two graduate students for one normal student and five members of the public" - *Eds*) and the distribution of ecological knowledge and information;
iii) Support of free distribution and necessary translation of scientific literature within the major directions of its activity, exchange of scientists and students.

Three kinds of affiliations to BICER are proposed (Article 5):

1) Founding Members - "organisations which have been given a right by governments to act as such, which have paid their initial membership fees, and have been approved as Founding members by governmental bodies of USSR". Every country may suggest only one organisation as a founding member.
2) Members of the Centre - "organisations accepted as such by special contracts with the Centre".
3) Associate Members of the Centre - "persons who have paid an Associate Member fee, the size of which is determined by the Centre and who will receive by mail general information on the activities of the Centre".

The Administration of the Centre (Article 6) will consist of founding members who will meet every two years for a General Meeting to consider, discuss and decide on issues of changes in the Centre Charter, the directions of scientific research, development plans (e.g. building constructions), financial reports and future budgets. The General Meeting will elect members of an International Body which will meet every year, or more frequently if necessary, to consider and select suitable research projects, and approve the current budget.

Existing facilities currently owned by various USSR Authorities that may be used by BICER include fully equipped laboratories and numerous research vessels (including the 600 ton "Balkhash" - short for Balkan Hashish? - *Eds*). Accommodation for 20-50 scientist

currently exist, but this is inadequate for the proposed needs of BICER, and living quarters and research facilities near Lake Baikal will be constructed. Urgent requirements for the successful establishment of BICER include oceanographic equipment, a computer and "a bank account in hard currency for speedy purchase of reagents, spare parts, etc."

BOOK REVIEW

Australian Wetlands.
A.J. McComb and P.S. Lake. 1990. Angus and Robertson. RRP $49.95

"Australian Wetlands" arose from a World Wide Fund (WWF - changing the name but keeping the same acronym saves heaps in confusion) for Nature workshop on wetland conservation held a few years ago in Sydney. While the technical proceedings from the workshop have been published it was suggested "that a popular account should also be published".

Shudder! Such an idea would normally leave this reviewer cold; the thought of yet another glossy coffee table book on this great country of ours; more aesthetic, expensive colour photos and insipid text along the lines of "the sun, a blood-red orb, rises over the tranquil verdant marshlands, glinting majestically off the calm aqua-blue waters". Makes you want to pack up your troubles and head for the country (or settle back in the Jason recliner, sink another beer, and dream about being in the great outdoors). In reality, of course, the blood-red orb makes the temperature about 40 in the shade, the blue-green hue is caused by algal blooms feeding on hyper-eutrophic fertilizer run-off from nearby residential complexes, the mosquitoes and leeches literally eat you alive, you have to pick your way through discarded car bodies, condoms and syringes to even see the wetland (although you can smell it from miles away). As you may guess, this writer has very little time for coffee table style publications. They may look good, but serve no real purpose apart from entertainment. The reader is left none the wiser.

Understandably, I therefore approached this book with some trepidation. A quick flip through the pages showed some of the trade-marks of the disposable "popular" book. Quality photos, slick presentation ... but wait ... something's wrong ... there seems to be a bit too much writing, too much text for a book that visitors can browse through while you're in the kitchen making the coffee or buttering the scones. Guess I'd better read this in a bit more depth (a wetlands joke there).

Yeah, yeah, as usual, the first bit outlines the strange attraction of humans to water. Standard opening. But, hey, what's this ... a definition of wetlands ... the Ramsar

Convention ... processes in wetlands ... "oligotrophic"? Technical terms? Scientific terms? Traditional Aboriginal use of wetlands? Hang on. There's actually interesting stuff here. It's enough to put you off your espresso. How can you digest information and cucumber sandwiches at the same time?

As you read on, it becomes clear that this is not your "run-of-the-mill" coffee table publication. But it's not a traditional scientific text either. Somehow it manages to find that fine line between the two - never descending to the trivial nor rising to the confusing. And overall, it manages to do that quite well. So long as you don't read the bits about your specialty too carefully (the section on upland rivers is too short and uninformative), the rest always provides at least some new information (I now know more about dugongs). The writing style is simple, informative and easy to understand (although in places it seems to have been written over some time in sections, with some unnecessary repetition).

The layout and rationale of the text follows the logical flow of the hydrological cycle. Starting with upland lakes and streams and progressively moving to foothill waterbodies, lowland environments, estuaries and finally to the coastline and back to the sea. Other chapters include artificial wetlands, salt lakes and groundwater. And finally, there is a section on wetland degradation, management options and restoration. The focus of the text is not to outline the "cute and furry" characteristics of wetlands, but to explain the different types of wetlands, why they are different and what happens in them.

The text is interspersed with special features, looking at aspects of wetlands in a little more depth than the general text allows. These tend to occupy about 2 pages and are easily distinguished from the rest of the text. These features cover a wide range of topics, from Lake Mungo to optical properties of water, The Snowy Mountain Scheme to stream invertebrate drift, avian botulism to biological control of *Salvinia*. Unfortunately the placement of these features slap bang in the middle of text blocks on other subjects is confusing - finish reading one paragraph, get distracted by the feature, back to the next paragraph and you've forgotten what you were first reading.

Of course, given the size of the book and scope of the subject, it is obvious that there will be errors and omissions (you'll never please everyone). The acknowledgement to Ms T. Raadik is interesting as <u>he</u> works in the next room to me. Some of the coverage appears to be a bit patchy - granite outcrop lakes in Western Australia gets 5½ pages, while volcanic Queensland lakes are covered in a single paragraph. This may be a result of the authors' expertise and biases or a genuine account of the state of our knowledge (and lack of it) about various freshwater bodies. And why, oh why, was it printed in Singapore!

Given that it tries (and I feel succeeds) to cover a wide field with some intelligent comment and analysis for the general punter, I imagine this will be a difficult book to sell. If it only contained the pictures (and excellent quality and scope they are in the main),

lounge rooms all over Australia would have multiple copies scattered with interior decorating precision throughout the room, but the text will no doubt scare of buyers with that overseas relative in mind. And it will by no means find sales as a serious scientific text. But as it stands, it's a very good "middle-of-the-road" account of the range of wetlands and some of the important things that go on in them. This would be an excellent book for budding scientist, undergraduates contemplating a career in limnology, high school students or anyone interested in a little more than just pretty pictures. Oh, and by the way, despite being a tad expensive (don't tell your tax accountant it's not essential reading for your work), all royalties go to the work of the WWF.

T. Doeg

BOOK REVIEWS WANTED

One of the functions of the ASL Newsletter is to bring you reviews of books, conference proceedings or the like. This can only be done with the cooperation of the members of ASL who have the ability to read. So, if you have expertise in any field, and happen to come across a good new book (or even a bad one - warn others about shonky work), take the time to sit down and churn out a page or two for the newsletter. If you have produced a book, send a freebie ... er ... a review copy to the newsletter editors and we may be able to pass it onto someone who may like to review it. Better still, give it to a friend and get them to review it for us.

For example, our attention has been drawn to two publications that may be appropriate to review. One is the "Biological Information for Management of Native Freshwater Fish in Victoria" by J. Koehn and W. O'Connor from the Victorian Department of Conservation and Environment (you may have got a flyer about it in the last issue). The other is the proceedings of the Australian Society for Fish Biology Workshop on "Introduced and Translocated Fishes and their Ecological Effects". If you have a copy of either, and are prepared to scribble a review, please do. If you want a copy, we have one of each to give away - the first ASL giveaway holiday reading special prize ever - first correct entry with the answer to the question "Are you prepared to do a serious review of one of these two books for the newsletter?" gets a free copy.

BOOK REVIEW

The Complete Works of William Shakespeare - Oxford Press. 1690.
An anonymous review.

A long, but pleasant book of stories about people. Comedy, farce, tragedy - it's all there. Not quite the equivalent of Williams on freshwater life but getting there. Fills a gap.

ANNOUNCEMENTS

USEPA CLEAN LAKES CLEARINGHOUSE DATABASE

From Frank Burns, P.O. Box 1035, Glen Waverley, Victoria 3150, Australia.
FAX (03) 8879637.

I have recently acquired a copy of the USA EPA Clean Lakes Clearinghouse Database. This is a set of floppies to run on an IBM PC with dBase III+ software, giving access to references and short abstracts, on published technical papers dealing with lake restoration, protection and management. At present, this contains about 1800 references, taking up 3 Mb of hard disk space, which are updated and added to from time to time. Most of the references are to NALMS [North American Lake Management Society] and USEPA publications, to which I have access, but the more readily available journals such as Water Research, Freshwater Biology and Archiv für Hydrobiologie are also covered. Actually, I have found the abstracts to be quite useful, since they are short and to the point, and summarise the main conclusions of the articles sufficiently to get a general idea of where the work is leading.

If any ASL members are interested in the sort of information provided by the database, I could FAX them a copy of the printout from a search for references on "Toxic Algae" for which there are just 8 references. Don't ask me for "Algae" which goes on and on with 240 references. Then if they like what they see, they could communicate direct with the USA EPA to see if they could get a copy by writing to: U.S. Environmental protection Agency, Clean Lakes Program, Washington, D.C. 20460 U.S.A.

NEW JOURNAL WANTS CONTRIBUTIONS

Aquatic Conservation: Marine and Freshwater Ecosystems is a new journal due out in mid-1991. This journal will provide a forum in which all aspects of conservation of aquatic biological resources (specifically freshwater, brackish and marine) can be presented and discussed, enabling greater cooperation and efficiency in solving problems in aquatic resource conservation. Contributions will be accepted from as wide a geographical range as possible to ensure a broad representation of conservation issues in both developed and developing countries. The subjects covered will include: Theoretical principles underlying conservation; survey, surveillance and monitoring; habitat and community classification; status of endangered species, communities and habitats; management of communities and habitats; water quality standards for nature conservation; impact assessment; creative conservation and rehabilitation; conservation strategies; legal issues; inter-relationships of marine and freshwater ecosystems. It costs US$ 75.00 to subscribe, and Professor W.D. Williams at the University of Adelaide is our regional editor. Get scribbling.

THE ECOLOGY INSTITUTE PRIZE - CALL FOR NOMINATIONS.

The 1991 prize will be awarded in the field of limnetic ecology. The Institute instigated the prize in 1986 to foster synthesis and exchange amongst the various fields of ecology. Previous winners include Tom Fenchel, E.O. Wilson, Gene Likens and Robert Paine. The lucky winner gets to write a book and wins a stipend of US$ 5000. Further information about nominating your favorite limnetic ecologist can be obtained from Professor J. Overbeck, Max-Planck-Insitut für Limnologie, Postfach 165, D-2320, Plön, F.R. Germany.

FRIENDS OF THE NATURAL HISTORY MUSEUM, LONDON

An edited note from Harry Casey, River Lab, Institute of Freshwater Ecology, passed on through Terry Hillman of MDFRC.

There can be few people concerned with the environment who have not at some stage had course to refer to the Natural History Museum, London. Many will have consulted the incomparable collections as well as the public galleries.

The Museum's Corporate Plan 1990-1995, announced earlier this year, has been greeted with almost universal dismay by the scientific community worldwide. Over 900 letters of protest have already been received. A number of us, who are not members of the Museum staff, but who have been closely associated with the Museum for many years, feel that the measures proposed are likely to provide only a short term, and unsatisfactory solution to certain fundamental problems underlying the Museums corporate structure, finance and management.

In particular, we feel that there has been inadequate consultation with members of the public, both at home and overseas, who regularly use the Museum's magnificent collections. Moreover, there is currently no avenue through which these views can be expressed, either to the Board of Trustees, or to the Government, other than the public outcry of the type we have been involved with over the last 6 months. We also note that NHM, unlike the majority of museums of similar standing, has no Friends' organisation to publicise generally in intelligent, but not necessarily purely scientific terms, the worldwide importance of the research work undertaken behind the scenes.

For this reason, we are looking into the possibility of setting up a Friends' organisation. We are not at this stage asking you to subscribe: we would merely like you to express in principal your support for such a move by sending your name, address and phone number to the address below. We plan to hold a public meeting in London on 25 October 1990. We will keep you informed of the result of the meeting, and, if it is decided to set up a

friends of the NHM organisation, you will be invited to become a founder member. (We have in mind an annual subscription of £15, but it is more likely to be around £5).

For further information and expressions of interest, write to:

Mrs. J. Murphy, 323 Hanworth Road, Hampton, Middlesex TW12 3EJ, U.K.

CALL FOR INFORMATION

VAUS, SSP, TIS, SCS. Confused yet? I know I am, and I work in amongst all of these acronyms everyday! What I have been able to gather though is that the Victorian State Government, in an effort to effectively manage timber resources, has produced a Timber Industry Strategy (aha! TIS). Value Adding Utilisation System (another one! VAUS) was developed under TIS to more efficiently utilise harvested forest resources, and this project is presently being trialled in East Gippsland. An aquatic component addressing fish and aquatic invertebrates has been incorporated into this project (VAUS) as this therefore meets one of the requirements of the State Conservation Strategy (brilliant! SCS) in protecting endangered fauna, and the 'Environmental Care' section of the TIS. Everything clear?

As part of the aquatic component of VAUS, I am initially collating fish and aquatic invertebrate distribution data for all of the waterbodies in east Gippsland, eastward from the Snowy River to the New South Wales border. I would be grateful to hear from any researchers who have published or unpublished information that is relevant to this project, and could they contact me at the following address:

Tarmo A. Raadik, Freshwater Fish Management Branch, Arthur Rylah Institute, 123 Brown Street, Heidelberg VIC 3084. Ph. (03) 450 8624 FAX (03) 450 8799

All information will be fully acknowledged. Oh, and if you are wondering about SSP, I'll leave you in the dark on that one, but I will provide the answer to those researchers who respond to this call. Thanks.

SYMPOSIA, CONFERENCES, WORKSHOPS, MEETINGS ETC

Australian Society for Limnology - ideas for more workshops. The last executive meeting asked the membership to suggest topics for further workshops. Thus far ASL has organised successful inexpensive workshops about the identification of certain groups of invertebrates. As our past president, Rod Oliver, suggested in his address [you didn't read it, did you?], other taxonomic or methodological workshops would be beneficial to the

membership. So suggest a topic and a venue, dob in an underling to organize it (optional), and get in touch with the ASL Executive pronto.

In addition the proceedings of these workshops could be distributed to all members as a special publication of the A.S.L. or as part of the Bulletin of the A.S.L.; the executive seeks comments from you unwashed masses out there about your preferred options. The first two off the starting blocks would be keys to the aquatic stages of the known leptophlebiid mayflies and chironomids.

Tropical Environment Summer School James Cook University, Townsville. During the summer teaching recess of 1990-1991, James Cook University is running a series of short programs to broaden the perspective on environmental problems associated with tropical areas. Two types of courses are offered: A Masters level intensive course over a two week period - "Environmental and Resource Economics" in mid-January and "Tropical Environments and Tourism" in mid-February. The cost of these courses is $235. Shorter three day courses ($150) include topics from Tropical Ecology, Environmental Law, Waste Management, Biodiversity, Population, and other political issues. Further information (but hurry!) from Harry Abrahams, J.C.U. Ph. (077) 814831, or write to Tropical Environment Summer School, James Cook University, Townsville 4811.

Stream Hydrology Workshops (a reminder) The Centre for Environmental Applied Hydrology will be presenting two workshops on stream hydrology in January-February, 1991. Dr. Robert Newbury, a stream hydrologist from Canada who led the Centre's 1989 workshops on habitat and hydrology, will be directing both workshops. Workshop A: Habitats and Hydrology, is a 3-day workshop similar to the November 1989 workshop. Participants will gain hands-on experience in measuring the hydraulic geometry of streams and will learn methods of describing stream habitats at a catchment, reach, local and boundary layer scales. Workshop B: Stream Rehabilitation is a 4-day workshop which will include tours of stream sites where rehabilitation work has been carried out, and sites where work is required. Participants will receive training in biological habitat requirements and stream rehabilitation techniques. For further information, please contact Ms. Nancy Gordon, Centre for Environmental Applied Hydrology, Dept. Agricultural Engineering, University of Melbourne, Vic, 3052. Tel: (03) 3446641.

Wetlands Conservation and Management Workshop, The Wetlands Centre, Shortland, New South Wales. February 11-15, 1991. Overall Theme: Educating and Managing for better Wetlands Conservation. This workshop is intended to bring together policy makers, planners, managers and educationists together to exchange ideas and information on wetlands conservation. Each day will begin with several invited keynote papers addressing aspects of the nominated theme, followed by workshop sessions, "hands-on" activities and field inspections of appropriate local wetlands. Plenary sessions will be held at suitable times to canvas the full spectrum of opinions on key issues and objectives. Nominated

themes: What are we here for?; Threats to wetlands; Wise use of wetlands; How do you manage a wetland?; Priorities and action - where are we going? Information from: Wetlands Workshop Organising Committee, The Wetlands Centre, PO Box 130, Wallsend, NSW 2287, or phone (049) 516466, or FAX (049) 501875. Registration cost is $100 (includes lunch and cups of tea, discussion papers, field excursions).

International Symposium on Aquatic Birds in the Trophic Web of Lakes, Mount Allison University, Sackville, New Brunswick, Canada. August 20-22, 1991. Objectives: To develop a better understanding of the role of aquatic birds in inland water bodies and facilitate communication between aquatic scientists and managers interested in aquatic birds and their habitats. Initial expression of interest were required by October 15, 1990. Address: Aquatic Birds Symposium 1991, P.O. Box 1006, Dartmouth, Nova Scotia, Canada B2Y 4A2. Ph (902) 4266356 FAX (902) 4267827.

Societas Internationalis Limnologiae (SIL) XXV Congress, Barcelona, August 23-30, 1992. Preliminary Notice: "This will be the first SIL Congress to be held in a Spanish-speaking country, and in a very special year, to commemorate the meeting of different cultures and to face perspectives for future relationships based on a respect for natural resources. The XXV SIL Congress should be a forum for discussion of scientific and applied problems related to water. The central theme of our meeting will be therefore: Water: The Ultimate Vehicle For Life."

First International Symposium on Meromixis and Microstratification, Banyoles, Spain, First week of September, 1992 (immediately after the Barcelona SIL Congress). First Announcement: "The main objectives of the Symposium will be to assess the status of knowledge on meromixis and microstratification in different aquatic ecosystems, including estuaries." To be held in the Benedictine Monasterium of Banyoles, close to the Banyoles lake meromictic basins. Further information from : Dr. Peter A. Tyler, Organising Committee, Department of Plant Science, University of Tasmania, Box 252-C, GPO Hobart, Tasmania 7001.

XVII Pacific Science Congress, Honolulu, Hawaii, May 27-June 2, 1991. Six major symposia will be conducted at the conference - 1) Global Environmental Change - Pacific Aspects, 2) Population, Health and Social Change, 3) Science and Culture, 4) Biological Diversity, 5) Emerging Technologies and Development, and 6) Dynamics of the Earth and the Heavens: The Pacific Arena. For further information on the Congress and to receive the first circular, write to XVII Pacific Science Congress Secretariat, 2424 Maile Way, Fourth Floor, Honolulu, HI 96822 U.S.A.

As part of the Biological Diversity Symposium, Assoc. Prof. Robert A. Kinzie III is considering the possibility of putting together a session focussing on the diversity, biogeography and evolution of organisms that live in isolated aquatic habitats such as

anchialine ponds, streams on islands and perhaps hypersaline lagoons. The central characteristic unifying these habitats is that they are isolated by stretches of normal marine habitats. Anyone interested in more information on this session is invited to contact: Associate Professor Robert A. Kinzie III, Department of Zoology, University of Hawaii at Manoa, Edmondson Hall, 2538 The Mall, Honolulu, Hawaii 96822, U.S.A.

Australian Entomological Society, 22nd General Meeting and Conference Melbourne, 15-18 July 1991. The conference will include symposia on the impact of exotic insects in Australia, insects in vulnerable environments in S.E. Australia, with particular reference to alpine and aquatic faunas, and genetic engineering and biotechnology. A taxonomic workshop to discuss methodology is planned and contributed papers will be accepted on all aspects of Australian entomology. And it's just after ASL at Lorne. Further details from: Janet Horne (convener), Plant Research Institute, Swan St., Burnley, Victoria, Australia 3121.

7th ASPAB Conference The Australian Society for Phycology and Aquatic Botany will hold its next conference in Adelaide from 17th until the 20th July 1991. Contact: Dr A. Cheshire, Botany Department, University of Adelaide, Box 498 GPO, Adelaide 5001.

PEG Workshop on Tropical Zooplankton Planned for Lake Kariba, Zimbabwe 06-15 July 1991 (Contact is Hillary M. Masundire, Lake Kariba Research Station, University of Zimbabwe, P.O. Box 48, Kariba, Zimbabwe).

VI International Rotifer Symposium 3rd-8th June 1991 at Banyoles, Spain (Contact is Maria Rosa Miracle, Ecologia, Fac. Ciencias Biologicas, Univ. de Valencia, 46100 Burjassot (Valencia) Spain).

World Fisheries Congress 14-19 April 1991 in Athens, Greece. Themes: condition of major aquatic habitats; fisheries resource utilization and policy; protection of biological diversity; international development projects; assessment methodologies and fisheries management; role of aquaculture in world fisheries. Contact: American Fisheries Society, 5410 Grosvenor Lane, Suite 110, Bethesda, MD 20814, USA.

8TH International Pectinid Workshop 22-29 May 1991 in Cherbourg, France. Preliminary program: fisheries biology, growth and nutrition, metabolism and regulation, reproduction and recruitment, genetics. Contact: Prof. Pierre Lubet, Laboratoire de Zoologie, Univerité de Caen, F 14032 CAEN cedex, France.

A Training Program In Economic Analysis of Aquaculture Systems 26 May - 8 June 1991 at University of Hawaii at Manoa. Contact: International Programs Office, College of Tropical Agriculture and Human Resources, Gilmore Hall, Room 214, 3050 Maile Way, Honolulu, Hawaii, USA, 96822. FAX: (808) 956-6442.

5TH International Conference On Artificial Habitat For Fisheries November 1991 Functions, benefits, and uses of artificial reefs, fish aggregation devices, and related technologies. Dr. D. Pollard of the New South Wales State Fisheries has been nominated as the Australian National Coordinator, or contact direct: Mr. R.S. Grove, Conference Chair, C/o Section of Fishes, National History Museum, 900 Exposition Blvd., Los Angeles, CA 90007, USA.

Third Asian Fisheries Forum 26-30 October 1992 in Singapore. Contact: Chairman, Local Organising Committee, C/o ITP Services, Pte. Ltd., 994 Bendemeer Rd, #04-03 Singapore 1233.

First Asian Fisheries Exposition (Fish Asia '92) 26-30 October 1992. Contact: ITP Wervices (Pte) Ltd, 994 Bendemeer Road, #04-03 Singapore 1233, Republic of Singapore.

And From the Age, 24/11/90:

LAND CONSERVATION COUNCIL
PUBLICATION OF PROPOSED
RECOMMENDATIONS

VICTORIA'S RIVERS AND STREAMS

The Council's proposed recommendations for Victoria's rivers and streams are now available.

These recommendations describe proposals for the use of Victoria's rivers, and the protection of their **nature conservation, recreation, scenic, and cultural heritage values.** They apply only to public land and propose the establishment of a Heritage River System and protection of Essentially Natural Catchments.

Previous Council recommendations for public land water frontage reserves have been reviewed and recommendations covering other river related issues are also included.

Submissions Invited

Submissions are now invited from interested persons and bodies in regard to the use of Victoria's Rivers and Streams. These submissions will be considered by the Council when making final recommendations as to the balanced use of land and the protection of riverine values. Written submissions should be addressed to the Secretary, and must be lodged on or before **Friday, 15 March 1991.**

The proposed recommendations and an information pamphlet are available free of charge, if collected, from the Information Victoria Bookshop, 318 Little Bourke Street, Melbourne; Department of Planning and Urban Growth Bookshop, 477 Collins Street, Melbourne; and regional offices of the Department of Conservation and Environment. If recommendations are to be posted, written requests should be addressed ONLY to the Law Printer, PO Box 203, North Melbourne 3051, and include a remittance of $4.00 for each copy to cover postage and handling.

For further information: Phone (03) 628 5142

For Country callers: Phone (008) 134 803

G. Blackman, Secretary,
Land Conservation Council
1st Floor, 477 Collins Street
Melbourne 3000

Victoria
GROWING TOGETHER

THE HYDRAULIC BASIS OF SNAG MANAGEMENT

Dr Christopher Gippel
University of Melbourne

Exploitation of rivers for navigation and water supply has often involved periodic or regular removal of obstructions as part of so called river improvement schemes. Fallen trees in rivers were termed "snags" in the era of river trade because they presented a hindrance to navigation and the negative connotation was intentional. Fallen trees are now removed (or managed) for different reasons but they are still commonly referred to as "snags". In studies of river hydraulics the functional terms "obstruction" and "large roughness element" are used, but the descriptive term, "large woody debris (LWD)", used by ecologists, has more universal application.

The main reasons why LWD is now removed from rivers are: to remove obstructions to the conveyance of water; to remove a source of bank erosion, and; to rejuvenate a channel by encouraging bed scour, which is thought to occur following removal of LWD. While LWD management has traditionally been regarded as essentially an engineering problem, disciplines and interest groups with alternative viewpoints are now demanding greater involvement. Claims of improved hydraulic capacity are numerous but largely based on intuition and anecdotal evidence. Also, the wider environmental role of LWD is now more widely appreciated. Its function as habitat for aquatic fauna has been established, even if poorly understood. Snags also affect water quality and contribute to the aesthetic value of a waterway.

Most desnagging of rivers has been undertaken with little regard for the direct or indirect effects on aquatic fauna. The removal work is also expensive, with a conservative estimate being around $100 per snag. While recent concern over the undesirable aspects of desnagging has promoted a more sensitive approach to management, the guidelines are still generally "rule-of-thumb". While many river managers may be intuitively convinced that removal of LWD will improve conveyance, and thereby lead to reduced flooding problems, or more water available for irrigation, it has not been unequivocally demonstrated that these improvements are of a significant magnitude. This assumption is being tested by researchers at the Centre for Environmental Applied Hydrology at the University of Melbourne, using a number of approaches: laboratory studies of model LWD; field studies of the hydraulic effect of LWD removal, and; numerical modelling.

One requirement for management is methodology for rapid assessment of the characteristics of LWD in rivers. Comprehensive field mapping is time consuming and difficult in all but shallow, clear streams. The line intersect transect technique is adequate for assessing LWD loading per unit area of channel bottom but does not indicate

orientation which is an important hydraulic factor. Little data have been gathered from medium-large sized rivers because of the practical difficulties in taking measurements, since much of the woody debris is underwater. In even larger rivers, such as the Murray, direct measurement is impossible. Experimentation with remote sensing of LWD from a boat using sonar indicates that this technique has potential for rapid assessment of aquatic habitat in deep turbid rivers.

The bankfull water surface profile of the Tumut River, NSW was measured at three sites where LWD accumulations were designated to be removed.

Immediately following removal, the profiles were resurveyed at the same discharge. Subtraction of the two profiles gave the backwater effect of the blockages. The profiles demonstrated that while a large blockage of woody debris can locally elevate the water by 220 mm, some snags do not have a measurable hydraulic effect and their removal is not defensible on these grounds. The LWD accumulations exerted a large influence on the velocity distribution across the section, creating areas of dead water but also areas of fast flowing diverted water.

Laboratory studies are also being undertaken. The objective is to measure the drag force exerted by model LWD when it is oriented at various angles at the flow and placed in different parts of the section. These studies will establish which particular snag configurations produce a large hydraulic effect and which are relatively benign. These data can be used in numerical models to extend the analysis to virtually any combination of snag and rive characteristics. Thus, using a few simple field measurements, it should be possible to quickly assess the potential hydraulic effect of a snag in a river.

In desnagged rivers whose banks have also been cleared or thinned, the recruitment of LWD to something approaching natural levels may take 100 years or more. The attitude towards LWD in rivers has shifted away from the removal imperative towards environmentally sensitive management of remaining material. Future snag management could be concerned with enhancing or rehabilitating impoverished rivers by re-introduction of LWD.

The studies outlined above will allow development of quantitative guidelines for snag management based on hydraulic considerations. This knowledge will be transferred to river managers by way of a manual and workshop. The workshop is scheduled for early April 1991.

Support-Your-Friendly-Local-Like-Minded-Small-But-Similar-Sized-Society-As-Well Dept.

AUSTRALIAN SOCIETY FOR FISH BIOLOGY

The Australian Society For Fish Biology was founded in 1971 with the intention of promoting fish studies and the interchange of information between fish biologists in a relaxed but effective manner. Annual Conferences have been held once every year since the Society's inception, and within a few years, they had become the highlight of the Society's calendar, providing a forum for members around Australia to meet and discuss their work. The Society began with 79 members, rising to in excess of 450 to date.

To enhance its contribution to research, conservation and management of fish and their habitats in Australia, the Society holds workshops on specific topics in conjunction with it's Annual Conferences. The first such workshop, a two-day event on *Australian Threatened Fishes*, was held in Melbourne in 1985. In addition to these major workshops, another series of workshops on fish collection management, organised independently by museum-affiliated members but held under the auspices of the Society, was initiated with a one-day program immediately after the 1985 Melbourne Conference.

The Society currently publishes a newsletter twice a year (in May and November), which contains information of interest to the Society membership, including notices and information on Society activities, a bibliography of publications by Society members, abstracts of papers presented at each Annual Conference, and updated lists of names and addresses of financial members. The proceedings of workshops are usually produced separately as special publications.

Applications for membership are invited from any person interested in the aims of the Society (as set out in the constitution) or any institution wishing to receive the Society's newsletter and other publications. The Society year extends from 1 January to 31 December. There are four membership categories: Student Member: ($5.00 per year), Ordinary Member: ($20.00), Institutional Member: ($20.00), Foreign Member: (A$20.00).

Membership forms are available from: Dr. C.M. MacDonald, Treasurer, ASFB,Marine Sciences Laboratory, PO Box 114, Queenscliff, Victoria 3225, Australia.

Editors' Note: We publish this in the hope to forge closer links between small societies with similar interests (besides, the ASFB Editor works in the next room and we swap articles of interest). Many members are probably aware of ASFB, there may be some out there who may find this of interest. From these humble beginnings, joint conferences and the like are born (and the taxman cometh and liketh professional Society fees as deductions). The ASFB Newsletter (November) will carry a similar message on the ASL.

Special Holiday Reading supplement

CHILDREN'S CORNER

IS THIS YOUR FUTURE?

A solution to that insecure future from "The Independent" (1 October 1990):

> "In a quiet corner at one end of the hall, a self-published poet whispers his timeless verses to a sea of brown cord jackets and serious pipes while, at the other end, in an entirely successful attempt to draw attention to Miss Tuppy Owen's new range of books, the gorgeous pouting Mr. Burnel struts his stuff atop six-inch-high silver space boots, black Velvelette and matching pink beehive. Miss Owen's *oeuvre* includes the *1991 Safer Sex Maniacs Diary* (also available in a size to fit your Filofax).
>
> In a previous reality, Miss Tuppy was a freshwater ecologist at the Natural Environment Research Council. "I had a bit of a reputation there, as I couldn't really fulfil my passions," she says. Liberation came in 1972 when no one gave her a diary for Christmas, so she designed her own with a "sexual surprise on each page to keep me alert". Realising that this was a potential money-spinner, Miss Tuppy became a small publisher and now claims to sell 100,000 a year."

Editors comment: Where did we go wrong?

BOOK REVIEW

The Pre History of the Far Side. A 10th Anniversary Exhibit - Andrews and McMeel, Kansas City. 1990

While genius artists like Van Gough and Jackson Pollock now have their due recognition, they died poor and unappreciated. Two things that can be said of Gary Larson, artist and cartoonist, are that he probably isn't penniless, and he is certainly well recognised and appreciated (honest, ASL will send you the royalty cheques any day now!).

To celebrate (or cash in on, depending on your level of cynicism) 10 years of drawing the Far Side cartoons, Gary Larson has produced this book. Not the normal anthology of previously published cartoons, but a somewhat deeper look at his efforts - from the first

sale of six early works to a small local magazine in Seattle (for $90), to the regular sale of Nature's Way (the Far Side precursor) to a local weekly (three bucks each), then the Seattle Times ($15 each), to the appearance of the first Far Side on January 1 1980 in the San Francisco Chronicle and subsequent syndication. Many of the early (pre-Far Side) cartoons are produced, along with examples of ones that decency dictated were never published and should never have been submitted (all which prove Larson is a sick, sick man!)

One section of the book looks at the inspiration behind the cartoons, with Larson providing the initial sketches and the finished article, with an personal explanation of the sometimes tortuous path from idea to product - and why he has a cow fetish. Other sections look at different aspects of the cartoonists profession, including mistakes. Not all of Larson's cartoons are perfect, and mistakes do happen. Several examples are given of mistakes by him (e.g. putting penguins and polar bears in the same cartoon) and by the publishers (some funny examples of transposed captions with Dennis The Menace). Another section looks at the public response to the cartoons. These generally consist of abuse from animal liberationists, dog lovers, cat lovers, even from Amnesty International over the torture and dungeons cartoons. Some of the more obscure cartoons (you know, the ones you never get) are actually explained. The section on rejected cartoons actually has some of the funniest Larsons ever - but in the big wide world of commercialism, the first rule seems to be to never offend.

Larson fans must have a certain sense of humour. As Mel Brooks says "Tragedy is when I cut my finger. Comedy is when you walk into an open sewer and die". For the Larson fan, this is an excellent book, and well worth getting hold of a copy.

Tim Doeg

THOUGHT FOR THE DAY

"Nullum Gratuitum Prandium"

Come on all you budding Latin scholars. Translate this. The neatest correct entry wins ... the editor s' respect as a well-rounded human being with a good private school education!

Special Secret Leaked Document Report

RIVER ECOLOGY - A BROADER PERSPECTIVE

Editor note: This anonymous contribution detailing the program for a forthcoming workshop was sent to us in an internal mail envelope. The last recipient of the said envelope was one, I. McKelvie, from a now defunct Institute of Technology. Pure coincidence, of course. We quote verbatim:

"Rationale: this workshop on River Ecology is designed to broaden the individual's perception, by using innovative techniques from various disciplines: science, art ›drama, psychology etc.

Program - Day 1

8.45 - 9.00	Registration
9.00 - 9.17	Welcome and introduction by Dr. Barry T. Hart, Director. Centre for Stream Ecology.
9.18 - 10.00	Background of participants. Ecology quiz and coffee.
10.00 - 10.45	Basic concepts in ecology
10.45 - 11.15	Morning tea
11.15 - 12.30	The river/stream environments: diversity in type, habitats and organisms.
12.30 - 2.00	Lunch. Collage construction using natural materials.
2.00 - 3.45	Laboratory session 1: an introduction to the major groups of organisms living in streams and rivers.
3.45 - 4.15	Afternoon tea
4.15 - 5.45	Laboratory session 2: a series of 5 activities related to river ecology including predator/prey relationships via the medium of finger-puppet theatre, food webs and classification (some dance/mime components) etc. Coffee included.
7.00	Predinner drinks. Brief concert party with excerpts from "The Mikado" and "H.M.S. Pinafore"
7.30	Dinner. "Evangelism and the aquatic environment". Guest speaker: Rev. Fred Nile.

Program - Day 2

9.00 - 10.00	Role play: issues in river ecology/river management (in costumes and masks). Coffee provided.
10.00 - 11.00	Morning tea and coffee (Exhibition: ferret bagging)

11.00 - 12.30	Field exercises including aerobics, ergonomics of kick sampling, jousting and mud wrestling. Coffee provided.
12.30 - 3.00	Lunch. Ice sculpture exhibition and construction of small dioramas depicting environmental issues (papier-mache provided)
3.00 - 3.30	Laboratory session 3: observation and identification of all Australian freshwater invertebrates; construction of keys to species of Australian Oligochaeta and Mollusca; staining procedures for rod bacteria (special guest: Rick Edwards); if time permits: demonstration of FFF and FIA techniques. Coffee provided.
3.30 - 4.30	Playtime and coffee; "Handel's Water Music" with charades; *A capella* singing by members of Biology and Chemistry staff.
4.30 - 4.35	Panel discussion (7 experts) on major problems confronting Australian freshwater systems; Devonshire tea will be served.
4.35 - 5.30	Group encounter session; Naked tableaux presentation (groups of 4-5) illustrating perceptions of the range of aquatic systems and issues presented in the course - to be judged by Dr. P.S. Lake.
5.30	End of workshop."

BLASTS FROM THE PAST

From the Newsletter, Volume 23(3), November 1985:

"ASL FUN RUN

The inaugural ASL Fun Run was held over a 6 km course during the 24th Congress ...[Jarrahdale, 1985] ... The run commenced at some ungodly hour on the morning of Sunday August 25th. Twelve runners, mostly hung over from the dinner the previous evening, took part. Their times are listed below:

1. Gary Morgan, Peter Breen 30:06, 2. John Blyth 30:55 (We still remember the purple suit, John! - *Eds.*), 3. Paul Harvey 31:51, 4. Tim Moulton, Janet Dunbabin 32:02, 5. Jenny Davis, Roy Swain 32:21, 6. Ian Campbell 37:20, 7. Jim Kyle 40:54, 8. Rhonda Sinclair 49:02

Bill Williams - set record for 2 km, time not recorded but undoubtably very fast!
Jane Chambers - did not run, but managed to get out of bed in 47:26, a personal best.
Stuart Bunn - still in bed at time of printing, still well short of his personal best."

ROCK AND ROLL LIMNOLOGY

The Editors' top eleven Rock and Roll Limnology songs:

1. Take Me To The River - Talking Heads "Stop Making Sense" 1984
   A young undergraduate contemplates a future career in limnology.
2. Drifting Blues - Eric Clapton "EC Was Here" 1975
   A sad lament sung by lotic macroinvertebrates as dusk approaches.
3. When The River Runs Dry - Hunters and Collectors "Ghost Nation" 1989
   The stirring temporary stream limnologist's anthem.
4. Smoke On The Water - Deep Purple "Made In Japan" 1972
   Thumping heavy metal rap (the 'C' is silent) as terrestrial entomologists evaluate "fogging" as a collecting method for aquatic benthic macroinvertebrates and fish.
5. Before The Deluge - Jackson Browne "Late For The Sky" 1974
   A stochastic classic as Jackson counters the Intermediate Disturbance Hypothesis.
6. Swamp - Talking Heads "Stop Making Sense" 1984
   Who says the Editors are biased towards flowing water limnology?
7. Nitty Gritty Mississippi - Ry Cooder "Crossroads Soundtrack Album" 1986
   Aquatic sedimentologists investigate the turbidity regime of a major world waterway.
8. Cry Me A River - Joe Cocker "Collection" 1982
   A young limnologist gets a grant rejection notice.
9. Two Rivers - Jeff Beck "Jeff Beck's Guitar Shop" 1989
   The replication requirements for a valid experimental design explained.
10. Standing By The River - Climax Blues Band "FM/Live" 1973
    Public service limnologists hard at work.
11. Get A Job - Sha-Na-Na "The Golden Age of Rock And Roll" 1973
    If you thought getting that degree was tough...

AN EXTRACT FROM A LETTER FROM PAUL McEVOY

We have kept his address secret.

"One of my fellow classmates at Canberra was born and bred there. During his final year, he attended a party at which there were a number of schoolmates he had not seen for many years. When asked by a friend what he now did, he announced (and intending to impress his friend) that he was now very interested in Limnology. "Oh yeah", replied the mate, without any hesitation. "That's the study of limbs." My classmate could only nod his head.

"Since then, whenever I am asked about the definition of Limnology, I recount the real one first, but also offer this amusing alternative label.

"I appeal to your well developed sense of humour (flattery will get you everywhere, Paul - *Eds*) to decide whether this may be of amusement to members of the society. If one wished to hammer the pun, a newsletter cover might portray a Da Vinci-type anatomical sketch of a human limb. By all means ignore these suggestions if you feel they have no merit" (just watch for the next cover, good idea - *Eds*).

AN EXTRACT FROM AN ANONYMOUS LETTER

"Editors, ASL Newsletter

"Well, that is the typical philistine, pig-ignorance I have come to expect from you non-creative garbage, who sit there **[LONG PLAGIARISED TIRADE DELETED HERE]** not caring a tinkers-cuss for the struggling aquatic biologist. Shame! It's an outrage!

"I wish to protest in the strongest possible voice at the fascist, neo-nazi, totalitarian communist strong-arm tactics employed by the so-called humane and ethical ASL Newsletter Editors. The ruthless, and utter Indonesia-East Timoresian approach to handling the 1990 conference abstracts is to be abhorred. A letter to the UN and my immediate resignation from the Society are the only alternatives left to ameliorate a rather nasty situation, though in the absence of Gareth Evans overseas at this time of internal crisis may very well lead to the situation escalating beyond all bounds and resulting in the amassing of biologists equipped with all the latest in freeze-corers and sub-samplers on your editorial office border (door way).

"Sincerely, Annoyed."

The Editors' Right of Reply: Thank you for your kind and thoughtful letter. I can only assume it is about the lack of abstracts printed in the newsletter (that makes one comment against, no comments for). By the way, we do know who you are, one who might be known by the initials TR. We accept your views and will consider them (for a number of nanoseconds) at the nearest drinking establishment. However, if you would be kind enough to let us know who started the ugly rumour that we are humane and ethical, we will be able to take more appropriate fascist-communist action.

AN OPEN LETTER TO GENE LIKENS

Dear Gene,

Glad you like it. How about sending us squillions of dollars from the U.S. so we can retire and do it without having to work.

The Editors.

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